

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:04:51 ; Search time 61.66 Seconds
(without alignments)
246.895 Million cell updates/sec

Title: US-09-642-277A-3
Perfect score: 467
Sequence: 1 FLRIHPDGRVDGVREKSDPH.....ESNNYNTYRSRKYTSWYVAL 88

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues

Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_19:*

- 1: sp_archaea:*
- 2: sp_bacteria:*
- 3: sp_fungi:*
- 4: sp_human:*
- 5: sp_invertebrate:*
- 6: sp_mammal:*
- 7: sp_mhc:*
- 8: sp_organelle:*
- 9: sp_phage:*
- 10: sp_plant:*
- 11: sp_rodent:*
- 12: sp_virus:*
- 13: sp Vertebrate:*
- 14: sp_unclassified:*
- 15: sp_rv1rus:*
- 16: sp_bacteriaph:*
- 17: sp_archaeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	467	100.0	196	4	P78443	P78443 homo sapien
2	462	98.9	130	6	O77767	O77767 canis famill
3	457	97.9	170	11	O60487	O60487 cavia porce
4	453	97.0	108	6	O9N1S7	O9N1S7 capreolus c
5	452	96.8	111	6	O9BDX1	O9BDX1 macaca mula
6	442.5	94.8	153	11	O925A3	O925A3 mus musculu
7	400	85.7	101	13	P79706	P79706 cynops pyr
8	400	85.7	155	13	O90Y92	O90Y92 cynops pyr
9	391	83.7	125	13	O98TD8	O98TD8 cynops pyr
10	348	74.5	109	11	O925A1	O925A1 mus musculu
11	344	73.7	112	11	O925A2	O925A2 mus musculu
12	341	73.0	76	6	O9NOV2	O9NOV2 ovis aries
13	334.5	71.6	146	13	O07659	O07659 gallus gall
14	238	51.0	106	6	O9N1S8	O9N1S8 capreolus c
15	179.5	38.4	196	13	O9YH31	O9YH31 notophthalm
16	178	38.1	134	13	O90XQ3	O90XQ3 ambystoma m

17	177.5	38.0	124	13	O90XQ5	O90XQ5 ambystoma m
18	174.5	37.4	111	13	O90XQ1	O90XQ1 ambystoma m
19	172	36.8	208	6	O95K97	O95K97 macaca fasc
20	167.5	35.9	206	13	O9YGD8	O9YGD8 oncorhynchu
21	162.5	34.8	213	6	O9N1B9	O9N1B9 ovis aries
22	162	34.7	208	4	O96P59	O96P59 homo sapien
23	162	34.7	212	13	O42407	O42407 gallus gall
24	160	34.3	186	6	O95LA7	O95LA7 mustela vis
25	159	34.0	112	13	O90XP9	O90XP9 ambystoma m
26	159	34.0	185	11	O9ERN5	O9ERN5 rattus norv
27	157	33.6	111	13	O90Y71	O90Y71 xenopus lae
28	154	33.0	208	13	O9PVY1	O9PVY1 xenopus lae
29	153.5	32.9	191	13	O9DFC9	O9DFC9 brachydanio
30	152	32.5	227	13	O9DDN0	O9DDN0 gallus gall
31	151	32.3	207	11	O9ESL8	O9ESL8 mus musculu
32	151	32.3	207	11	O9ERQ5	O9ERQ5 mus musculu
33	151	32.3	208	6	O95L12	O95L12 sus scrofa
34	151	32.3	127	11	O9ESL9	O9ESL9 mus musculu
35	147	31.5	127	4	O99517	O99517 homo sapien
36	147	31.5	212	11	O9EST9	O9EST9 rattus norv
37	146	31.3	181	11	O924B4	O924B4 rattus norv
38	146	31.3	181	13	O9IAI7	O9IAI7 gallus gall
39	146	31.3	243	13	O9W6A1	O9W6A1 gallus gall
40	146	31.3	302	11	O9CSX5	O9CSX5 mus musculu
41	137	29.3	74	6	O77561	O77561 oryctolagus
42	135	28.9	199	13	O9IAI3	O9IAI3 gallus gall
43	135	28.9	245	13	O9W6A2	O9W6A2 gallus gall
44	133	28.5	237	13	O9IAI6	O9IAI6 gallus gall
45	133	28.5	252	11	O89096	O89096 rattus norv

ALIGNMENTS

RESULT	1	PRELIMINARY;	PRT;	196 AA.
ID	P78443			
AC	P78443			
DT	01-MAY-1997 (TREMBLrel. 03, Created)			
DT	01-MAY-1997 (TREMBLrel. 03, Last sequence update)			
DT	01-JUN-2001 (TREMBLrel. 17, Last annotation update)			
DE	21 KDA BASIC FIBROBLAST GROWTH FACTOR (BFGF).			
GN	FGF2.			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.			
OX	NCBI_Taxid:9606;			
RN	(1)			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE-89184522; PubMed-2538817;			
RA	Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lejlas J.M., Liauzun P., Chalon P., Tauber J.P., Amelric F., Smith J.A., Caput D.;			
RT	"High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";			
RT	Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).			
RL	[2]			
RP	SEQUENCE OF 81-168 FROM N.A.			
RX	MEDLINE-93038590; PubMed-1417798;			
RA	Watson R., Anthony F., Pickett M., Lambden P., Masson G.M., Thomas E.J.;			
RT	"Reverse transcription with nested polymerase chain reaction shows expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients.";			
RL	Biochem. Biophys. Res. Commun. 187:1227-1231(1992).			
DR	EMBL; J04513; AAA52532.1; -			
DR	EMBL; S47380; AAD13853.1; -			
DR	HSSP; P09038; 1BFF.			
DR	InterPro; IPR002209; HBGF_FGF.			
DR	InterPro; IPR002348; IL1_HBGF.			
DR	Pfam; PF00167; FGF; 1.			
DR	PRINTS; PR00262; IL1HBGF.			
DR	ProDom; PD000831; HBGF_FGF; 1.			
DR	SMART; SM00442; FGF; 1.			

DR PROSITE; PS00247; HBGF_FGF; 1.
SQ SEQUENCE 196 AA; 21203 MW; D6B5447137E60343 CRC64;

Query Match 100.0%; Score 467; DB 4; Length 196;
Best Local Similarity 100.0%; Pred. No. 3.9e-47;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLQLOAEERGVSVIKVCANRYLAMKEDGRLASKCVTD 60
Db 81 FLRIHPDGRVDGVRKSDPHIKLQLOAEERGVSVIKVCANRYLAMKEDGRLASKCVTD 140

OY 61 ECFEERLESNNNTYRSKRYTSWYVAL 88
Db 141 ECFEERLESNNNTYRSKRYTSWYVAL 168

RESULT 2

ID 077767 PRELIMINARY; PRT; 130 AA.

AC 077767; 077767;

DT 01-NOV-1998 (Tremblrel. 08, Created)

DT 01-NOV-1998 (Tremblrel. 08, Last sequence update)

DT 01-JUN-2001 (Tremblrel. 17, Last annotation update)

DE BASIC FIBROBLAST GROWTH FACTOR (BFGF) (FGF-2) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR) (FRAGMENT).

DE BFGF.

GN BFGF.

OS Canis familiaris (Dog).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Carnivora; Fissipedia; Canidae; Canis.

OX NCBI_Taxid-9615;

RN [1]

RP SEQUENCE FROM N.A.

RC TISSUE-ADRENAL GLAND;

RA Trochta O.A., Jacobs R.M., Lamare J.;

RT "The role of BFGF in canine Hemangiosarcoma."

Submitted (Apr-1998) to the EMBL/Genbank/DBJ databases.

CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).

CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST ONE HEPARAN SULFATE (BY SIMILARITY).

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

DR EMBL; AF060562; AAC35912.1; -

DR HSSP; P09038; 1BFF.

DR InterPro; IPR002209; HBGF_FGF.

DR InterPro; IPR002348; IL1_HBGF.

DR Pfam; PF00167; FGF; 1.

DR PRINTS; PR00262; ILIHGF.

DR ProDom; PD000831; HBGF_FGF; 1.

DR SMART; SM00442; FGF; 1.

DR PROSITE; PS00247; HBGF_FGF; 1.

KW Growth factor; Mitogen; Vascularization; Heparin-binding; Phosphorylation; Developmental protein.

KW Phosphorylation; Developmental protein.

FT NON_TER 1

FT SITE 21 23

FT SITE 63 65

FT BINDING 10 11

FT BINDING 65 65

FT BINDING 103 119

FT MOD_RES 48 48

FT MOD_RES 96 96

FT NON_TER 130

SQ SEQUENCE 130 AA; 14902 MW; 21900876E878FAEA CRC64;

Query Match 98.9%; Score 462; DB 6; Length 130;

Best Local Similarity 97.7%; Pred. No. 9.1e-47;
Matches 86; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLQLOAEERGVSVIKVCANRYLAMKEDGRLASKCVTD 60
Db 15 FLRIHPDGRVDGVRKSDPHIKLQLOAEERGVSVIKVCANRYLAMKEDGRLASKCVTD 74

OY 61 ECFEERLESNNNTYRSKRYTSWYVAL 88
Db 75 ECFEERLESNNNTYRSKRYTSWYVAL 102

RESULT 3

ID 060487 PRELIMINARY; PRT; 170 AA.

AC 060487; 060487;

DT 01-NOV-1996 (Tremblrel. 01, Created)

DT 01-MAY-2000 (Tremblrel. 13, Last sequence update)

DT 01-JUN-2001 (Tremblrel. 17, Last annotation update)

DE FIBROBLAST GROWTH FACTOR 2 (FGF-2) (FIBROBLAST GROWTH FACTOR, BASIC) (BFGF) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR) (FRAGMENTS).

DE FGF2.

GN Cavia porcellus (Guinea pig).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Hystriognathi; Cavidae; Cavia.

OX NCBI_Taxid-10141;

RN [1]

RP SEQUENCE OF 53-170 FROM N.A.

RC TISSUE-PROSTATE;

RA Ricciardelli C.;

Submitted (JAN-1996) to the EMBL/Genbank/DBJ databases.

[2]

SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.

MEDLINE-89273588; PubMed-2730645;

Sommer A., Moscatelli D., Rifkin D.B.;

"An amino-terminally extended and post-translationally modified form of a 25kd basic fibroblast growth factor."

Biochem. Biophys. Res. Commun. 160:1267-1274(1989).

[3]

PARTIAL SEQUENCE, AND METHYLATION.

MEDLINE-91322114; PubMed-1713785;

Burgess W.H., Bizik J., Mehlman T., Quarto N., Rifkin D.B.;

"Direct evidence for methylation of arginine residues in high molecular weight forms of basic fibroblast growth factor."

Cell Regul. 2:87-93(1991).

[4]

CHARACTERIZATION.

TISSUE-BRAIN;

MEDLINE-87289686; PubMed-3475702;

Moscatelli D., Joseph-Silverstein J., Manojas R., Rifkin D.B.;

"Mr 25,000 heparin-binding protein from guinea pig brain is a high molecular weight form of basic fibroblast growth factor."

Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782(1987).

-1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION, PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).

CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST ONE HEPARAN SULFATE (BY SIMILARITY).

CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS; 18 KDA AND 25 KDA (SHOWN HERE); MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION INITIATION SITES. BOTH FORMS ARE ACTIVE.

CC -1- P.TM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLE).

CC -1- CAUTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF PARTIAL AMINO-ACID SEQUENCING.

CC PARTIAL AMINO-ACID SEQUENCING.

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DR EMBL; L75974; AAA85394.1; ALT_FRAME.
DR HSSP; P09038; 1BLA.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002343; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Vascularization; Heparin-binding;
KW Alternative initiation; Methylation; Phosphorylation;
KW Developmental protein.
FT NON_TER. 1
FT NON_CONS 15
FT CHAIN <1 170
FT CHAIN 22 170
FT INIT_MET 22 22
FT DOMAIN 11 14
FT NON_CONS 50 51
FT SITE 61 63
FT SITE 103 105
FT BINDING 50 51
FT BINDING 105 105
FT BINDING 143 159
FT MOD_RES 4 4
FT MOD_RES 6 6
FT MOD_RES 8 8
FT MOD_RES 88 88
FT MOD_RES 136 136
SQ SEQUENCE 170 AA; 18354 MW; F36BDBC736E5FEBC CRC64;

Query Match
Best Local Similarity 97.9%; Score 457; DB 11; Length 170;
Matches 85; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLQLOAEERGVSIGVCANRYLAMKEDGRLLASKCVTD 60
Db 55 FLRIHPDGRVDGVRKSDPHIKLQLOAEERGVSIGVCANRYLAMKEDGRLLASKCVTD 114
OY 61 ECFPERLESNNNTYRSRKYTSWYVAL 88
Db 115 ECFPERLESNNNTYRSRKYTSWYVAL 142

RESULT 4
O9N1S7 PRELIMINARY; PRT; 108 AA.
AC O9N1S7;
DT 01-OCT-2000 (TREMBLrel. 15, Created)
DT 01-OCT-2000 (TREMBLrel. 15, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN BGF.
OS Capreolus capreolus (Roe deer).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervidae;
OC Cervidae; Odocoileinae; Capreolus.
OC NCBI_TaxID=9858;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-TESTIS;
RX MEDLINE-20532861; PubMed-11078967;
RA Wagener A., Blotner S., Gortiz F., Fickel J.;
RT "Detection of growth factors in the testis of roe deer (Capreolus
RT capreolus).";
RL Anim. Reprod. Sci. 64:65-75(2000).
DR EMBL; AF152587; AAF73226.1; -.
DR HSSP; P09038; 4FGF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
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DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 108
FT NON_TER 108
SQ SEQUENCE 108 AA; 12399 MW; 6BC7B7244214567E CRC64;

Query Match
Best Local Similarity 97.0%; Score 453; DB 6; Length 108;
Matches 85; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 3 RIHPDGRVDGVRKSDPHIKLQLOAEERGVSIGVCANRYLAMKEDGRLLASKCVTDEC 62
Db 1 RIHPDGRVDGVRKSDPHIKLQLOAEERGVSIGVCANRYLAMKEDGRLLASKCVTDEC 60
OY 63 FFERLESNNNTYRSRKYTSWYVAL 88
Db 61 FFERLESNNNTYRSRKYTSWYVAL 86

RESULT 5
O9BDX1 PRELIMINARY; PRT; 111 AA.
AC O9BDX1;
DT 01-JUN-2001 (TREMBLrel. 17, Created)
DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopithecoidea;
OC Cercopithecoidea; Macaca.
OC NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RA Sekhon H.S., Keller J.K., Spindel E.R.;
RT "Alterations in Collagen and Elastin Gene Expression in Fetal
RT Pulmonary Vessels in Monkeys Following Prenatal Nicotine Exposure: A
RT Possible Role of alpha7 Nicotinic Acetylcholine Receptor in Persistent
RT Pulmonary Hypertension.";
RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF251270; AAK37962.1; -.
DR HSSP; P09038; 2FGF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 111
FT NON_TER 111
SQ SEQUENCE 111 AA; 12633 MW; EC0967A5261F5487 CRC64;

Query Match
Best Local Similarity 96.8%; Score 452; DB 6; Length 111;
Matches 85; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 4 IHPDGRVDGVRKSDPHIKLQLOAEERGVSIGVCANRYLAMKEDGRLLASKCVTDEC 63
Db 1 IHPDGRVDGVRKSDPHIKLQLOAEERGVSIGVCANRYLAMKEDGRLLASKCVTDEC 60
OY 64 FFERLESNNNTYRSRKYTSWYVAL 88
Db 61 FFERLESNNNTYRSRKYTSWYVAL 85

RESULT 6
O925A3 PRELIMINARY; PRT; 153 AA.
AC O925A3;
AC O925A3;
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DT 01-DEC-2001 (Tremblrel. 19, Created)
DT 01-DEC-2001 (Tremblrel. 19, last sequence update)
DT 01-DEC-2001 (Tremblrel. 19, last annotation update)
DE FIBROBLAST GROWTH FACTOR 2.
GN FGF2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=FVB/N;
RA Dicks R.P., Griep A.E.;
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are
expressed in mouse embryos."
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY027551; AAK52308.1;
SQ SEQUENCE 153 AA; 17024 MW; AD8163CD8FA2FAAB CRC64;

Query Match 94.8%; Score 442.5; DB 11; Length 153;
Best Local Similarity 95.5%; Pred. No. 2.2e-44;
Matches 84; Conservative 3; Mismatches 0; Indels 1; Gaps 1;

OY 1 FLRIHPDGRVDGVRKSDPHIKLOLAEEERGVSIGVCANRYLAMKEDGRLASKCVTD 60
|||||
Db 39 FLRIHPDGRVDGVRKSDPHIKLOLAEEERGVSIGVCANRYLAMKEDGRLASKCVTE 97
OY 61 ECFEERLESNNYNTYRSRKYTSWYVAL 88
|||||
Db 98 ECFEERLESNNYNTYRSRKYTSWYVAL 125

RESULT 7
ID P79706 PRELIMINARY; PRT; 101 AA.
AC P79706;
DT 01-MAY-1997 (Tremblrel. 03, Created)
DT 01-MAY-1997 (Tremblrel. 03, last sequence update)
DT 01-DEC-2001 (Tremblrel. 19, last annotation update)
DE BASIC FGF (FRAGMENT).
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=EMBRYO;
RA Suzuki A.S., Tabata T., Sakaguchi K., Takabatake T., Takeshima K.,
Kaneda T.;
RT "Serial expression of the genes in a mesodermalizing ectoderms of
early Cynops gastrula."
RL Submitted (NOV-1996) to the EMBL/GenBank/DBJ databases.
DR EMBL; D89443; BAI13958.1;
DR HSSP; P09038; AFGF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT 101
SQ SEQUENCE 101 AA; 11907 MW; 74A16C866C1F457A CRC64;

Query Match 85.7%; Score 400; DB 13; Length 101;
Best Local Similarity 85.2%; Pred. No. 1.4e-39;
Matches 75; Conservative 7; Mismatches 6; Indels 0; Gaps 0;
OY 1 FLRIHPDGRVDGVRKSDPHIKLOLAEEERGVSIGVCANRYLAMKEDGRLASKCVTD 60
|||||

Db 12 FLRINSKGKVDGAREKSDSYIKLOLAEEERGVSIGVCANRYLAMKDDGRLMAKMTD 71
OY 61 ECFEERLESNNYNTYRSRKYTSWYVAL 88
|||||
Db 72 ECFEERLESNNYNTYRSRKYSDWYVAL 99

RESULT 8
ID Q90Y92 PRELIMINARY; PRT; 155 AA.
AC Q90Y92;
DT 01-DEC-2001 (Tremblrel. 19, Created)
DT 01-DEC-2001 (Tremblrel. 19, last sequence update)
DT 01-DEC-2001 (Tremblrel. 19, last annotation update)
DE FIBROBLAST GROWTH FACTOR-2.
GN FGF-2.
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RA Susaki K., Nakamura K., Chiba C., Salto T.;
RT "Expression of FGF2 during newt retinal development and
regeneration."
RL Submitted (JUL-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AB064664; BAB63249.1;
SQ SEQUENCE 155 AA; 17278 MW; 2B583058538AB8D9 CRC64;

Query Match 85.7%; Score 400; DB 13; Length 155;
Best Local Similarity 85.2%; Pred. No. 2.3e-39;
Matches 75; Conservative 7; Mismatches 6; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLOLAEEERGVSIGVCANRYLAMKEDGRLASKCVTD 60
|||||
Db 40 FLRINSKGKVDGAREKSDSYIKLOLAEEERGVSIGVCANRYLAMKDDGRLMAKMTD 99
OY 61 ECFEERLESNNYNTYRSRKYTSWYVAL 88
|||||
Db 100 ECFEERLESNNYNTYRSRKYSDWYVAL 127

RESULT 9
ID Q98TD8 PRELIMINARY; PRT; 125 AA.
AC Q98TD8;
DT 01-JUN-2001 (Tremblrel. 17, Created)
DT 01-JUN-2001 (Tremblrel. 17, last sequence update)
DT 01-DEC-2001 (Tremblrel. 19, last annotation update)
DE FIBROBLAST GROWTH FACTOR-2 (FRAGMENT).
GN FGF-2.
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RA Mizuno N., Hayashi T., Kondoh H., Okamoto M.;
RT "Cynops fibroblast growth factor-2."
RL Submitted (OCT-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AB049625; BAB40835.1;
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT 125
SQ SEQUENCE 125 AA; 14244 MW; 5C27F41DC6E60C13 CRC64;

Query Match	83.7%;	Score 391;	DB 13;	Length 125;
Best Local Similarity	84.1%;	Pred. No. 2e-38;		
Matches 74;	Conservative 7;	Mismatches 7;	Indels 0;	Gaps 0;

```
QY 1 FLRIHPDGRVDCVYAEKSDPHIKLOLQAEERGVSITKGCANRYLAMKEDGRLLASCYTD 60
    ||||: ||: ||| |||| : ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 10 FLRINSDGKVDGAREKSDSYIKLQLQAEERGVSITKGCANRYLAMKDDGRLLMALKTWTD 69

QY 61 ECGFFERLESNNNTYRSRKYTSTWYAL 88
    ||||| ||||| ||||| ||||| |||||
Db 70 ECGFFERLESNNNTCRSKRYTSDWYAL 97
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RESULT	ID
Q925A1	
ID	Q925A1
PRELIMINARY:	
PRT:	109 AA

DT 01-DEC-2001 (TREMBlrel. 19, Created)
DT 01-DEC-2001 (TREMBlrel. 19, last sequence update)
DT 01-DEC-2001 (TREMBlrel. 19, last annotation update)
DE FIBROBLAST GROWTH FACTOR 2.
GN FGF2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-FVB/N;
RA Dirks R.P., Griep A.E.;
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are
RT expressed in mouse embryos.";
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY027558; AAK52310.1; -.
SQ SEQUENCE 109 AA; 12388 MW; 61074ADE3303C860 CRC64;

Query Match	74.5%;	Score 348;	DB 11;	Length 109;
Best Local Similarity	97.1%;	Pred. No. 2e-33;		
Matches	66;	Conservative	2;	Mismatches 0;
				Indels 0;
				Gaps 0;

QY	21	IKLOQAEERGVS	IKGVCANRYL	LAMKEDGRLL	ASKCVTDECF	EFFERLESNN	NTYRSRK	80
Db	14	IKLOQAEERGVS	IKGVCANRYL	LAMKEDGRLL	ASKCVTECEFF	ERLESNNNTY	RSRK	73
QY	81	YTSMYVAL		88				
Db	74	YSSMYVAL		81				

RESULT	ID	PRELIMINARY:	PRT:	112 AA.
0925A2	0925A2			
AC	0925A2;			
DT	01-DEC-2001 (TREMBLrel. 19, Created)			
DT	01-DEC-2001 (TREMBLrel. 19, Last sequence update)			
DT	01-DEC-2001 (TREMBLrel. 19, Last annotation update)			
DE	FIBROBLAST GROWTH FACTOR 2.			
GN	FGF2.			
OS	Mus musculus (Mouse).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Rodentia; Sclurognathi; Muridae; Murinae; Mus.			
OX	NCBI_TaxID=10090;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RC	STRAIN=FVB/N;			
RA	Dicks R.P., Griep A.E.;			
RT	"Multiple novel variants of fibroblast growth factor 2 transcripts are			
RT	expressed in mouse embryos.";			
RL	Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.			
DR	EMBL; AY027557; AAK52309.1; -			
SO	SEQUENCE 112 AA; 12725 MW; B00557ABE0257CCB CRC64;			

Query Match	73.7%;	Score 344;	DB 11;	Length 112;
Best Local Similarity	97.0%;	Pred. No. 6.1e-33;		
Matches 65;	Conservative	2;	Mismatches 0;	Indels 0;

QY	22	KLOLOAERGVS	SIKVCANRYL	AMKEDGR	LASKCVT	DECEFFER	LESNNY	NTYRSKRY	81
Db	18	KLOLOAERGVS	SIKVCANRYL	AMKEDGR	LASKCVT	DECEFFER	LESNNY	NTYRSKRY	77
QY	82	TSWYVAL							
Db	78	SSWYVAL							
		84							

RESULT	12	:
Q9NOV2		
ID	Q9NOV2	
DATE	09NOV2	
PRELIMINARY;		
PRT;		
	76	AA

DT	01-OCT-2000	(TREMBLrel. 15, Created)
DT	01-OCT-2000	(TREMBLrel. 15, Last sequence update)
DE	01-DEC-2001	(TREMBLrel. 19, Last annotation update)
GN	BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).	
GN	FGF-2.	
OS	Ovis aries (Sheep).	
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;	
OC	Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;	
OX	Bovidae; Caprinae; Ovis.	
RN	NCBI_TaxID=9940;	
RP	[1]	
RC	SEQUENCE FROM N.A.	
RA	TISSUE=FETAL PLACENTAL ARTERY;	
RT	Zheng J., Tsai S.C., Magness R.R.;	
RT	*Growth factor expression in ovine fetal placental artery endothelial	
RT	cells.*;	
RL	Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.	
DR	EMBL: AF250027; AAF65566.1; -	
DR	HSSP: P09038; 4FGF.	
DR	InterPro: IPR002209; HBGF_FGF.	
DR	InterPro: IPR002348; IL1_HBGF.	
DR	Pfam: PF00167; FGF; 1.	
DR	PRINTS: PR00262; IL1HBGF.	
DR	ProDom: PD000831; HBGF_FGF; 1.	
DR	SMART: SM00442; FGF; 1.	
DR	PROSITE: PS00247; HBGF_FGF; 1.	
FT	NON_TER	1
FT	NON_TER	1
FT	NON_TER	76
FT	NON_TER	76
SO	SEQUENCE	76 AA; 8796 MW; 7D984E2F97453B20 CRC64;

Query Match	73.0%;	Score 341;	DB 6;	Length 76;
Best Local Similarity	88.0%;	Pred. No. 8.6e-33;		
Matches 66;	Conservative 1;	Mismatches 0;	Indels 8.	Gaps 14

QY 18 DPHIKIQLQLAEEGCVSISIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNNTYR 77
 |||||
 Db 1 DPHIKIQLQLAEEGCVSISIKGVCANRYLAMKEDGRLASKCVTDECFPERLESNNNTYR 60
 |||||
 QY 78 SRKY-----TSW 84
 ||||| : :
 Db 61 SRKYSQLVCGTETNN 75

RESULT	13	
Q07659		
ID	Q07659	PRELIMINARY;
AC	Q07659;	PRT; 146 AA.
DT	01-NOV-1996	(TREMBLrel. 01, Created)
DT	01-NOV-1996	(TREMBLrel. 01, Last sequence update)
DT	01-JUN-2001	(TREMBLrel. 17, Last annotation update)
DE	FIROBLAST	GROWTH FACTOR.
GN	BEGF.	
OS	Gallus gallus	(Chicken).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID-9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE-93246053; PubMed-7683281;
RA Borja A.Z., Zeller R., Meijers C.;
RT *Expression of alternatively spliced bFGF first coding exons and
RT antisense mRNAs during chicken embryogenesis.*;
RL Dev. Biol. 157:110-118(1993).
RN [2]
RP SEQUENCE OF 52-85 FROM N.A.
RX MEDLINE-90382254; PubMed-2401202;
RA Mitrani E., Gruenbaum Y., Shohat H., Ziv T.;
RT *Fibroblast growth factor during mesoderm induction in the early chick
RT embryo.*;
RL Development 109:387-393(1990).
DR EMBL; M95706; AAA48616.1; -
DR EMBL; X56804; CAA40139.1; -
DR HSSP; P09038; 2BFH.
DR InterPro; IPR002209; HBGF_FGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; ILIHBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
SQ SEQUENCE 146 AA; 16182 MW; A7CB978CB456E247 CRC64;

Query Match 71.6%; Score 334.5; DB 13; Length 146;
Best Local Similarity 75.6%; Pred. No. 1.1e-31;
Matches 65; Conservative 6; Mismatches 8; Indels 7; Gaps 1;

QY 3 RIHPDGRVDGVRKSDPHIKLQLQAEERGVSIGVCANRYLAMKEDGRLTASKCVTDEC 62
Db 40 RVRPDERVSAM-----VKIQLQAEERGVSIGVSANRFLAMKEDGRLTALKKATEEC 92

QY 63 FFEERLESNNYNTYRSRKYTSWYVAL 88
Db 93 FFEERLESNNYNTYRSRKYSDWYVAL 118

RESULT 14
Q9NIS8 PRELIMINARY; PRT; 106 AA.
AC Q9NIS8;
DT 01-OCT-2000 (TREMBLrel. 15, Created)
DT 01-OCT-2000 (TREMBLrel. 15, last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, last annotation update)
DE ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN AFGF.
OS Capreolus capreolus (Roe deer).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervidae;
OC Cervidae; Odocoileinae; Capreolus.
OX NCBI_TaxID-9858;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-TESTIS;
RX MEDLINE-20532861; PubMed-11078967;
RA Wagener A., Biotner S., Goritz F., Fickel J.;
RT *Detection of growth factors in the testis of roe deer (Capreolus
RT capreolus).*;
RL Anim. Reprod. Sci. 64:65-75(2000).
DR EMBL; AF152586; AAF73225.1; -
DR HSSP; P05230; 2AFG.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; ILI_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; ILIHBGF.
DR ProDom; PD000831; HBGF_FGF; 1.

DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 1
FT NON_TER 1
SO SEQUENCE 106 AA; 11931 MW; 2EEC9C1D749A5023 CRC64;

Query Match 51.0%; Score 238; DB 6; Length 106;
Best Local Similarity 52.2%; Pred. No. 1.8e-20;
Matches 47; Conservative 13; Mismatches 28; Indels 2; Gaps 1;

QY 1 FLRIHPDGRVDGVRKSDPHIKLQLQAEERGVSIGVCANRYLAMKEDGRLTASKCVTD 60
Db 7 FLRIHPDGRVDGTDKDRSDQHQLQLSAESIGEVYIKSTGCGFLAMDTDGLYGSQTPNE 66

QY 61 ECFEERLESNNYNTYRSRKYTSWYVAL 88
Db 67 ECLFLERIEENHYNTYTSKRYAEKNWVGL 96

RESULT 15
Q9YH31 PRELIMINARY; PRT; 196 AA.
AC Q9YH31;
DT 01-MAY-1999 (TREMBLrel. 10, Created)
DT 01-MAY-1999 (TREMBLrel. 10, last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, last annotation update)
DE PUTATIVE FIBROBLAST GROWTH FACTOR-4.
OS Notophthalmus viridescens (Eastern newt) (Triturus viridescens).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae;
OC Notophthalmus.
OX NCBI_TaxID-8316;
RN [1]
RP SEQUENCE FROM N.A.
RA Wei Y.;
RT *Putative Newt Fibroblast Growth Factor-4.*;
RL Submitted (OCT-1996) to the EMBL/GenBank/DBJ databases.
DR EMBL; U76998; AAC98812.1; -
DR HSSP; P09038; 1BFF.
DR InterPro; IPR001064; Crystallin.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; ILI_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; ILIHBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00225; CRYSTALLIN_BETAGAMMA; UNKNOWN_1.
DR PROSITE; PS00247; HBGF_FGF; 1.
SQ SEQUENCE 196 AA; 22033 MW; AC4688CD989C6EAF CRC64;

Query Match 38.4%; Score 179.5; DB 13; Length 196;
Best Local Similarity 44.8%; Pred. No. 2.9e-13;
Matches 39; Conservative 14; Mismatches 33; Indels 1; Gaps 1;

QY 2 LRHPDGRVDGVRKSDPHIKLQLQAEERGVSIGVCANRYLAMKEDGRLTASKCVTDE 61
Db 86 LQVLPDGRIGHMSES-RYSLEISPERGVCMFGVSGFLIAMSNGRLFGSKYFSD 144

QY 62 CFEERLESNNYNTYRSRKYTSWYVAL 88
Db 145 CKFKEMLLPNNYNAVESNRYPGMYIAL 171

Search completed: June 2, 2002, 18:04:51
Job time: 629 sec

Sun Jun 2 18:28:52 2002

us-09-642-277a-3.rspt

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:05:15 ; Search time 20.21 Seconds

(Without alignments)
168.596 Million cell updates/sec

Title: US-09-642-277a-3

Perfect score: 467

Sequence: 1 FLRIHPDGRVDCVNEKSDPH.....ESNNYNTYRSRKYTSWYVAL 88

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt_40.*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	467	100.0	155	1	FGF2_HUMAN
2	463	99.1	137	1	FGF2_RABBIT
3	463	99.1	155	1	FGF2_BOVIN
4	463	99.1	155	1	FGF2_SHEEP
5	458	98.1	154	1	FGF2_MOUSE
6	458	98.1	154	1	FGF2_RAT
7	431	92.3	156	1	FGF2_MONDO
8	424	90.8	158	1	FGF2_CHICK
9	392	83.9	155	1	FGF2_XENLA
10	250	53.5	155	1	FGF1_MESAU
11	246	52.7	155	1	FGF1_MOUSE
12	243	52.0	155	1	FGF1_CHICK
13	240	51.4	155	1	FGF1_HUMAN
14	237	50.7	152	1	FGF1_PIG
15	229	49.0	155	1	FGF1_BOVIN
16	202	43.3	256	1	FGF3_BRARE
17	191.5	41.0	264	1	FGF5_MOUSE
18	191.5	41.0	266	1	FGF5_RAT
19	190	40.7	220	1	FGF3_CHICK
20	187.5	40.1	268	1	FGF5_HUMAN
21	186	39.8	237	1	FGF3_XENLA
22	185.5	39.7	245	1	FGF3_MOUSE
23	184.5	39.5	239	1	FGF3_HUMAN
24	182.5	39.1	194	1	FGF4_CHICK
25	178.5	38.2	208	1	FGF6_MOUSE
26	177.5	38.0	208	1	FGF6_HUMAN
27	173.5	37.2	187	1	FGF4_XENLA
28	172.5	36.9	206	1	FGF4_HUMAN
29	172	36.8	208	1	FGF4_HUMAN
30	170.5	36.5	215	1	FGF4_RAT
31	170.5	36.5	206	1	FGF4_BOVIN
32	168.5	36.1	192	1	FGF8_XENLA
33	168	36.0	209	1	FGF4_MOUSE

34	163	34.9	170	1	FGF6_HUMAN	O9hct0 homo sapien
35	160	34.3	194	1	FGF7_CANFA	P79150 canis famil
36	160	34.3	194	1	FGF7_MOUSE	P36363 mus musculu
37	159.5	34.2	202	1	FGF7_MOUSE	P14403 mus musculu
38	159	34.0	194	1	FGF7_SHEEP	P48808 ovis aries
39	158	33.8	194	1	FGF7_HUMAN	P21781 homo sapien
40	154	33.0	194	1	FGF7_PIG	O9n198 sus scrofa
41	153	32.8	209	1	FGF9_XENLA	O91875 xenopus lae
42	152	32.5	207	1	FGF9_RAT	O54769 rattus norv
43	152	32.5	208	1	FGF9_HUMAN	P31371 homo sapien
44	152	32.5	208	1	FGF9_MOUSE	P54130 mus musculu
45	152	32.5	208	1	FGF9_RAT	P36364 rattus norv

ALIGNMENTS

RESULT	ID	STANDARD	PRT	155 AA.
1	FGF2_HUMAN			
AC	P09038			
DT	01-NOV-1988 (Rel. 09, Created)			
DT	01-NOV-1988 (Rel. 09, Last sequence update)			
DT	01-MAR-2002 (Rel. 41, Last annotation update)			
DE	Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostathionin).			
DE	FGF2 OR FGF2.			
GN	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.			
OX	NCBI_TaxID:9606;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=87053817; PubMed=3780670;			
RA	Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,			
RT	Gospodarowicz D., Fiddes J.C.;			
RT	"Human basic fibroblast growth factor: nucleotide sequence and genomic organization."			
RT	EMBO J. 5:2523-2528(1986).			
RL	[2]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=87213238; PubMed=3472745;			
RA	Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;			
RT	"Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells."			
RT	Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).			
RL	[3]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=87213238; PubMed=3579930;			
RA	Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Presta M.,			
RT	Rifkin D.B.;			
RT	"A form of human basic fibroblast growth factor with an extended amino terminus."			
RT	Biochem. Biophys. Res. Commun. 144:543-550(1987).			
RL	[4]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=87162468; PubMed=2435575;			
RA	Kurokawa T., Sasada R., Iwane M., Igarashi K.;			
RT	"Cloning and expression of cDNA encoding human basic fibroblast growth factor."			
RT	FEBS Lett. 213:189-194(1987).			
RL	[5]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=89184522; PubMed=2538817;			
RA	Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,			
RA	Liauzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A.,			
RA	Caput D.;			
RT	"High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons."			
RT	Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).			
RL	[6]			
RP	SEQUENCE OF 10-35.			
RX	MEDLINE=86275260; PubMed=3732516;			

RA Gautschi P., Frater-Schroeder M., Boehlen P.;
RT "Partial molecular characterization of endothelial cell mitogens from
RT human brain: acidic and basic fibroblast growth factors.";
RL FEBS Lett. 204:203-207(1986).
RN [7]
RP SEQUENCE OF 10-39.
RX MEDLINE-85186784; PubMed-3964259;
RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
RT "Human brain-derived acidic and basic fibroblast growth factors:
RT amino terminal sequences and specific mitogenic activities.";
RL Biochem. Biophys. Res. Commun. 135:541-548(1986).
RN [8]
RP SEQUENCE OF 2-22.
RX MEDLINE-87156686; PubMed-2435284;
RA Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K.;
RT "Amino-terminal sequence of a large form of basic fibroblast growth
RT factor isolated from human benign prostatic hyperplastic tissue.";
RL Biochem. Biophys. Res. Commun. 142:702-709(1987).
RN [9]
RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
RX MEDLINE-91195367; PubMed-1707542;
RA Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
RT "Three-dimensional structure of human basic fibroblast growth
RT factor.";
RL Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
RN [10]
RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
RX MEDLINE-94004464; PubMed-7691311;
RA Eriksson A.E., Cousens L.S., Matthews B.W.;
RT "Refinement of the structure of human basic fibroblast growth factor
RT at 1.6-A resolution and analysis of presumed heparin binding sites by
RT protein substitution.";
RL Protein Sci. 2:1274-1284(1993).
RN [11]
RP X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
RX MEDLINE-91195368; PubMed-1849658;
RA Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
RT "Three-dimensional structure of human basic fibroblast growth factor,
RT a structural homolog of interleukin 1 beta.";
RL Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
RN [12]
RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
RX MEDLINE-92121151; PubMed-1769963;
RA Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
RT "Crystal structure of basic fibroblast growth factor at 1.6-A
RT resolution.";
RL J. Biochem. 110:360-363(1991).
RN [13]
RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
RX MEDLINE-91095983; PubMed-1702556;
RA Zhu X., Komlya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
RT "Three-dimensional structures of acidic and basic fibroblast growth
RT factors.";
RL Science 251:90-93(1991).
RN [14]
RP STRUCTURE BY NMR.
RX MEDLINE-97040521; PubMed-8885834;
RA Moy F.J., Seddon A.P., Boehlen P., Powers R.;
RT "High-resolution solution structure of basic fibroblast growth factor
RT determined by multidimensional heteronuclear magnetic resonance
RT spectroscopy.";
RL Biochemistry 35:13552-13561(1996).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
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CC -----
DR EMBL; M17599; AAA52534.1; ALT_INIT.
DR EMBL; X04431; CAA28027.1; -
DR EMBL; X04432; CAA28028.1; -
DR EMBL; X04433; CAA28029.1; -
DR EMBL; M27968; AAA52448.1; -
DR EMBL; J04513; AAA52533.1; ALT_INIT.
DR PIR; A25824; A25824.
DR PIR; A26642; A26642.
DR PIR; B24243; B24243.
DR PIR; B24301; B24301.
DR PIR; B32878; B32878.
DR PIR; S00297; S00297.
DR PDB; 2FGF; 15-APR-92.
DR PDB; 4FGF; 15-JUL-93.
DR PDB; 1FGA; 15-JUL-93.
DR PDB; 1BFB; 03-APR-96.
DR PDB; 1BFC; 03-APR-96.
DR PDB; 1BFF; 16-JUN-97.
DR PDB; 1BFG; 31-JAN-94.
DR PDB; 2BFH; 30-APR-94.
DR PDB; 1BLA; 08-NOV-96.
DR PDB; 1BLD; 08-NOV-96.
DR MIM; 134920; -
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;
KW 3D-structure.
FT PROPEP. 1 9
FT CHAIN 10 155
FT SITE 46 48
FT SITE 88 90
FT BINDING 27 31
FT BINDING 116 119
FT STRAND 30 34
FT STRAND 35 38
FT STRAND 39 43
FT TURN 45 46
FT STRAND 49 52
FT TURN 55 56
FT HELIX 58 60
FT STRAND 62 66
FT TURN 69 70
FT STRAND 71 76
FT TURN 77 80
FT STRAND 81 85
FT TURN 87 88
FT STRAND 91 94
FT HELIX 99 101
FT STRAND 103 107
FT TURN 109 110
FT STRAND 113 117
FT TURN 121 122
FT STRAND 124 124
FT STRAND 127 127
FT TURN 129 130
FT STRAND 132 133
FT HELIX 136 138
FT TURN 141 142
FT HELIX 144 146
FT STRAND 148 152
SQ SEQUENCE 155 AA; 17254 MW; BE6CE13373007129 CRC64;

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Query Match          100.0%; Score 467; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 8.2e-47;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLQLOAERGVSIGVCANRYLAMKEDGRLLASKCVTD 60
DB 40 FLRIHPDGRVDGVRKSDPHIKLQLOAERGVSIGVCANRYLAMKEDGRLLASKCVTD 99
OY 61 ECEFFERLESNNYNTYRSRKYTSWYVAL 88
DB 100 ECEFFERLESNNYNTYRSRKYTSWYVAL 127

RESULT 2
FGF2_RABIT          STANDARD;          PRT;          137 AA.
ID FGF2_RABIT
AC P48799;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 (HBGF-2) (Basic fibroblast growth
DE factor) (BFGF) (Prostatropin) (Fragment).
GN FGF2.
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX NCBI_TaxID=9986;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-NEW ZEALAND WHITE; TISSUE-Smooth muscle;
RX MEDLINE=93343209; PubMed=8342599;
RA Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Lian G.;
RT "Elevated expression of basic fibroblast growth factor in an
RT immortalized rabbit smooth muscle cell line.";
RL Am. J. Pathol. 143:518-527(1993).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
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CC -----
DR EMBL: L12034; AAA31248.1; -
DR HSSP: P09038; 1BFF.
DR InterPro: IPR002209; HBGF_FGF.
DR Pfam: PF00167; FGF_1.
DR PRODOM: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT BINDING 18 22 HEPARIN (POTENTIAL).
FT BINDING 107 110 HEPARIN (POTENTIAL).
FT NON_TER 137 137 HEPARIN (POTENTIAL).
SQ SEQUENCE 137 AA; 15418 MW; 0D9EE457B88E8C51 CRC64;

Query Match          99.1%; Score 463; DB 1; Length 137;
Best Local Similarity 98.9%; Pred. No. 2e-46;
Matches 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLQLOAERGVSIGVCANRYLAMKEDGRLLASKCVTD 60
DB 91 ECEFFERLESNNYNTYRSRKYTSWYVAL 118
OY 61 ECEFFERLESNNYNTYRSRKYTSWYVAL 88
DB 91 ECEFFERLESNNYNTYRSRKYTSWYVAL 118

RESULT 3
FGF2_BOVIN          STANDARD;          PRT;          155 AA.
ID FGF2_BOVIN
AC P03969;
DT 23-OCT-1986 (Rel. 02, Created)
DT 23-OCT-1986 (Rel. 02, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF) (Prostatropin) [Contains: Kidney-derived growth
DE factor].
GN FGF2 OR FGF-2.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN [1]
RP SEQUENCE FROM N.A.
RC MEDLINE=86261806; PubMed=2425435;
RX Abraham J.A., Mergia A., Whang J.L., Tumolo A., Fiedes J.C.;
RA Hjerild K.A., Gospodarowicz D., Fiddes J.C.;
RT "Nucleotide sequence of a bovine clone encoding the angiogenic
RT protein, basic fibroblast growth factor.";
RL Science 233:545-548(1986).
RN [2]
RP SEQUENCE FROM N.A.
RC MEDLINE=87217066; PubMed=3472745;
RX Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiedes J.C.;
RA "Human basic fibroblast growth factor: nucleotide sequence, genomic
RT organization, and expression in mammalian cells.";
RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
RN [3]
RP SEQUENCE OF 10-155.
RX MEDLINE=86016731; PubMed=3863109;
RA Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R.,
RA Gospodarowicz D., Boehlen P., Guillemin R.;
RT "Primary structure of bovine pituitary basic fibroblast growth factor
RT (FGF) and comparison with the amino-terminal sequence of bovine brain
RT acidic FGF.";
RL Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).
RN [4]
RP SEQUENCE OF 1-9.
RX MEDLINE=86295737; PubMed=3741423;
RA Ueno N., Baird A., Esch F., Ling N., Guillemin R.;
RT "Isolation of an amino terminal extended form of basic fibroblast
RT growth factor.";
RL Biochem. Biophys. Res. Commun. 138:580-588(1986).
RN [5]
RP SEQUENCE OF 25-41.
RC TISSUE-Kidney;
RX MEDLINE=86095426; PubMed=4081126;
RA Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;
RT "Isolation and partial characterization of an endothelial cell growth
RT factor from the bovine kidney: homology with basic fibroblast growth
RT factor.";
RL Regul. Pept. 12:201-213(1985).
RN [6]
RP SEQUENCE OF 21-40.
RC TISSUE-Kidney;
RX MEDLINE=87119165; PubMed=3809608;
RA Ueno N., Baird A., Esch F., Shimazaki S., Ling N., Guillemin R.;
RT "Purification and partial characterization of a mitogenic factor from
RT bovine liver: structural homology with basic fibroblast growth
RT factor.";
RL Regul. Pept. 16:135-145(1986).
RN [7]
```


RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE-91095983; PubMed-1702556;
RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
RA Hsu B.T., Rees D.C.;
RT "Three-dimensional structures of acidic and basic fibroblast growth
RT factors."
RL Science 251:90-93(1991).
CC -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -!- SUBUNIT: MONOMER.
CC -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL; M13440; AAA30518.1; -.
DR PIR; A24663; GKBOB.
DR PIR; A24819; A24819.
DR PIR; A32878; A32878.
DR PDB; 1BAS; 31-OCT-93.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;
KW 3D-structure.
FT PROPEP 1 9
FT CHAIN 10 155
FT SITE 25 155
FT SITE 46 48
FT SITE 88 90
FT BINDING 27 31
FT BINDING 116 119
FT STRAND 30 34
FT TURN 35 38
FT STRAND 39 43
FT TURN 45 46
FT STRAND 49 52
FT TURN 55 56
FT HELIX 58 60
FT STRAND 62 68
FT TURN 69 70
FT STRAND 71 76
FT TURN 77 80
FT STRAND 81 85
FT TURN 87 88
FT STRAND 91 94
FT HELIX 99 101
FT STRAND 103 107
FT TURN 109 110
FT STRAND 113 117
FT TURN 121 122
FT STRAND 124 124
FT TURN 127 127
FT TURN 129 130
FT STRAND 133 133
FT STRAND 136 138
FT TURN 141 142
FT HELIX 144 146
FT STRAND 148 151
SQ SEQUENCE 155 AA; 17250 MW; BE6CE70FA6107129 CRC64;

Query Match 99.1%; Score 463; DB 1; Length 155;
Best Local Similarity 98.9%; Pred. No. 2.4e-46;
Matches: 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;
QY 1 FLRIHPDGRVDGVRKSDPHIKLQLOAEERGVSITKVCANRYLAMKEDGRLLASKCVTD 60
Db 40 FLRIHPDGRVDGVRKSDPHIKLQLOAEERGVSITKVCANRYLAMKEDGRLLASKCVTD 99
QY 61 ECFEERLESNNYNTYRSRKYTSWYAL 88
Db 100 ECFEERLESNNYNTYRSRKYTSWYAL 127
RESULT 4
FGF2_SHEEP STANDARD; PRT; 155 AA.
ID FGF2_SHEEP
AC P20003;
DT 01-FEB-1991 (Rel. 17, Created)
DI 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Caprinae; Ovis.
OX NCBI_TaxID:9940;
RN [1]
RP SEQUENCE FROM N.A.
RA Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
RL Submitted (SEP-1994) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE OF 9-155.
RX MEDLINE-88055577; PubMed-3678486;
RA Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
RA Rubira M.R., Burgess A.W.;
RT "Primary structure of ovine pituitary basic fibroblast growth
RT factor."
RL FEBS Lett. 224:128-132(1987).
CC -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -!- SUBUNIT: MONOMER.
CC -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL; L36136; AAA31519.1; -.
DR PIR; S00185; S00185.
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;
KW PROPEP 1 9
FT CHAIN 10 155
FT SITE 45 48
SQ SEQUENCE 155 AA; 17250 MW; BE6CE70FA6107129 CRC64;

FT SITE 87 90 CELL ATTACHMENT SITE (POTENTIAL).
FT BINDING 27 31 HEPARIN (POTENTIAL).
FT BINDING 116 119 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17280 MW; B5F2364BA610606D CRC64;

Query Match 99.1%; Score 463; DB 1; Length 155;
Best Local Similarity 98.9%; Pred. No. 2.4e-46;
Matches 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSIGVCANRYLAKMEDGRLASKCYTD 60
|||||
DB 40 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSIGVCANRYLAKMEDGRLASKCYTD 99
|||||

OY 61 ECFEERLESNNNTYRSRKYTSWYVAL 88
|||||

DB 100 ECFEERLESNNNTYRSRKYTSWYVAL 127
|||||

RESULT 5.
FGF2_MOUSE STANDARD; PRT; 154 AA.
AC P15655;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN (1)
RP SEQUENCE FROM N.A.
RX MEDLINE=90201563; PubMed=2318343;
RA Hebert J.M., Basillco C., Goldfarb M., Haub O., Martin G.R.;
RT "Isolation of cDNAs encoding four mouse FGF family members and
RT characterization of their expression patterns during embryogenesis.";
RL Dev. Biol. 138:454-463(1990).
RN (2)
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J, A/J, AND NOD/LtJ; TISSUE=Spleen;
RA Ma R.Z., Teuscher C.;
RL Submitted (May-1998) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL; M30644; AAA37621.1; -
DR EMBL; AF065903; AAC17503.1; -
DR EMBL; AF065904; AAC17504.1; -
DR EMBL; AF065905; AAC17505.1; -
DR PIR; C37360; C37360.
DR HSSP; P09038; IBPF.
DR MGD; MGI:95516; Fgf2.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
CC

DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA; 17153 MW; 689F677416274388 CRC64;

Query Match 98.1%; Score 458; DB 1; Length 154;
Best Local Similarity 96.6%; Pred. No. 8.8e-46;
Matches 85; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSIGVCANRYLAKMEDGRLASKCYTD 60
|||||
DB 39 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSIGVCANRYLAKMEDGRLASKCYTE 98
|||||

OY 61 ECFEERLESNNNTYRSRKYTSWYVAL 88
|||||

DB 99 ECFEERLESNNNTYRSRKYTSWYVAL 126
|||||

RESULT 6
FGF2_RAT STANDARD; PRT; 154 AA.
AC P13109;
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN (1)
RP SEQUENCE FROM N.A.
RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Ovary;
RX MEDLINE=89061721; PubMed=3196337;
RA Shimasaki S., Emoto N., Koba A., Mercado M., Shibata F.,
RA Cooksey K., Baird A., Ling N.;
RT "Complementary DNA cloning and sequencing of rat ovarian basic
RT fibroblast growth factor and tissue distribution study of its mRNA.";
RL Biochem. Biophys. Res. Commun. 157:256-263(1988).
RN (2)
RP SEQUENCE FROM N.A.
RC TISSUE=Brain;
RX MEDLINE=88262516; PubMed=3387229;
RA Kurokawa T., Seno M., Igarashi K.;
RT "Nucleotide sequence of rat basic fibroblast growth factor cDNA.";
RL Nucleic Acids Res. 16:5201-5201(1988).
RN (3)
RP SEQUENCE OF 1-28 FROM N.A.
RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Testis;
RX MEDLINE=97200905; PubMed=9048734;
RA Pasumathil K.B.S., Jin Y., Cattini P.A.;
RT "Cloning of the rat fibroblast growth factor-2 promoter region and
RT its response to mitogenic stimuli in glioma C6 cells.";
RL J. Neurochem. 68:898-908(1997).
RN (4)
RP SEQUENCE OF 35-154 FROM N.A.
RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Brain;
RX MEDLINE=92329546; PubMed=1378302;
RA El-Husseini A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
RT "PCR detection of the rat brain basic fibroblast growth factor (bFGF)
RT mRNA containing a unique 3' untranslated region.";
RL Biochim. Biophys. Acta 1131:314-316(1992).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

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CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL: M22427; AAA41210.1; -
DR EMBL: X07285; CAA30265.1; -
DR EMBL: U78079; AAC53225.1; -
DR EMBL: X61697; CAA43863.1; -
DR PIR: S00876; S00876.
DR PIR: A31674; A31674.
DR HSSP: P09038; 1BFF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
KW PROPEP 1 9
FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA; 17139 MW; 1A0F14FFA23D8403 CRC64;
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Query Match 98.1%; Score 458; DB 1; Length 154;
Best Local Similarity 96.6%; Pred. No. 8.8e-46;
Matches 85; Conservative 3; Mismatches 0; Indels 0; Gaps 0;
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OY 1 FLRIHPDGRVDGVRKSDPHIKLQLQAEERGVSIKVCANRYLAMKEDGRLLASKCYTD 60
DB 39 FLRIHPDGRVDGVRKSDPHIKLQLQAEERGVSIKVCANRYLAMKEDGRLLASKCYTE 98
OY 61 ECFEERLESNNYNTYRSRKYTSWYVAL 88
DB 99 ECFEERLESNNYNTYRSRKYTSWYVAL 126
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RESULT 7
FGF2_MONDO STANDARD; PRT; 156 AA.
AC P48798;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (HBGF) (Prostatropin).
GN FGF2.
OS Monodelphis domestica (Short-tailed grey opossum).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
OX NCBI_Taxid=13616;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-Eye;
RX MEDLINE=94296558; PubMed=8024698;
RA Kusevlt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;
RT "Characterization of cDNA encoding basic fibroblast growth factor of
RT the marsupial Monodelphis domestica.";
RL DNA Cell Biol. 13:549-554(1994).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
```

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CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
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CC entities requires a license agreement (See http://www.isb-sib.ch/announce/
CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL: Z15154; CAA78854.1; ALF_INIT.
DR HSSP: P09038; 1BFF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR PRODOM: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
KW PROPEP 1 9
FT CHAIN 10 156 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 28 32 HEPARIN (POTENTIAL).
FT BINDING 117 120 HEPARIN (POTENTIAL).
SQ SEQUENCE 156 AA; 17303 MW; 7E655FCC49BF1209 CRC64;
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Query Match 92.3%; Score 431; DB 1; Length 156;
Best Local Similarity 92.0%; Pred. No. 1.2e-42;
Matches 81; Conservative 5; Mismatches 2; Indels 0; Gaps 0;
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OY 1 FLRIHPDGRVDGVRKSDPHIKLQLQAEERGVSIKVCANRYLAMKEDGRLLASKCYTD 60
DB 41 FLRIHPDGRVDGVRKSDPHIKLQLQAEERGVSIKVCANRYLAMKEDGRLLASKCYTE 100
OY 61 ECFEERLESNNYNTYRSRKYTSWYVAL 88
DB 101 ECFEERLESNNYNTYRSRKYTSWYVAL 128
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RESULT 8
FGF2_CHICK STANDARD; PRT; 158 AA.
AC P48800;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (HBGF).
GN FGF2 OR FGF-2.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_Taxid=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=93246053; PubMed=7683281;
RA Borja A.Z., Zeller R., Melfers C.;
RT "Expression of alternatively spliced bFGF first coding exons and
RT antisense mRNAs during chicken embryogenesis.";
RL Dev. Biol. 157:110-118(1993).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
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RESULT	9			
ID	FGF2_XENLA	STANDARD;	PRT;	155 AA.
AC	P12226;			
DT	01-OCT-1989 (Rel. 12, Created)			
DT	01-JAN-1990 (Rel. 13, Last sequence update)			
DT	01-MAR-2002 (Rel. 41, Last annotation update)			
DE	Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF).			
DE	FGF2 OR FGF-2.			
GN	Xenopus laevis (African clawed frog).			
OS	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Amphibia; Batrachia; Anura; Mesobatrachia; Pipidea; Pipidae;			
OC	Xenopodinae; Xenopus.			
OX	NCBI_TaxID-8355;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RP	MEDLINE-89058621; Pubmed-3194757;			
RX	Kimelman D., Abraham J., Haaparanta T., Palisi T., Kirschner M.;			
RA	"The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer.";			
RT	Science 242:1053-1056(1988).			
RL	[2]			
RN	SEQUENCE OF 95-155 FROM N.A.			
RP	MEDLINE-88052890; Pubmed-3479265;			
RX	Kimelman D., Kirschner M.;			
RA	"Synergistic induction of mesoderm by FGF and TGF-beta and the identification of an mRNA coding for FGF in the early Xenopus embryo.";			
RT	Cell 51:869-877(1987).			
RL	-1-			
CC	SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY			

RESULT	10
FGFL_MESAU	
ID	FGFL_MESAU
STANDARD:	PRT: 155 AA.
AC	P34004
DT	01-FEB-1994 (Rel. 28, Created)
DT	01-FEB-1994 (Rel. 28, Last sequence update)
DT	01-MAR-2002 (Rel. 41, Last annotation update)
DE	Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF).
GN	FGF1 OR FGF11.
OS	Mesocricetus auratus (Golden hamster).
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC	Mesocricetus.
OX	NCBI_TaxID-10036;
RN	[1]
RP	SEQUENCE FROM N.A.
RX	MEDLINE-90270291; PubMed-1693366;
RA	Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.;
RT	"Characterization of the hamster DDT-1 cell afgf/HGBF-1 gene and cDNA
RT	and its modulation by steroids.";
RL	J. Cell. Biochem. 43:17-26(1990).
CC	-1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC	IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC	VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC	CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC	-1- SUBUNIT: MONOMER.
CC	-1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC	THAN DOES BFGF.
CC	-1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC	PIR: A60721; A60721.

Chiu I.M.; RA
Evans J.E., Rotter A.,
Nackslaw K.V.

RN	[1]	1
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RX MEDLINE-91347925; PubMed-1715259;
RA Schnurch H., Risau W.;
RT "Differentiating and mature neurons express the acidic fibroblast
RT growth factor gene during chick neural development.";
RL Development 111:1143-1154(1991).
RN (2)
RP SEQUENCE FROM N.A.
RA Martin G.R., Han J.K.;
RL Submitted (JUL-1995) to the EMBL/GenBank/DBJ databases.
RN (3)
RP SEQUENCE OF 22-48.
RX MEDLINE-88296438; PubMed-3402441;
RA Risau W., Gautschi-Sova P., Boehlen P.;
RT "Endothelial cell growth factors in embryonic and adult chick brain
RT are related to human acidic fibroblast growth factor.";
RL EMBO J. 7:959-962(1988).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VITRO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES HBGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL: S63263; AAB19629.1; -
DR EMBL: U31863; AAA80310.1; -
DR EMBL: S63261; AAD13942.1; -
DR PIR: S02639; S02639.
DR HSSP: P05230; 2AXM.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR ProDom: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
FT CHAIN 22 155 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17322 MW; 8EDB70545E2B4365 CRC64;

Query Match 52.0%; Score 243; DB 1; Length 155;
Best Local Similarity 53.3%; Pred. No. 5.1e-21;
Matches 48; Conservative 15; Mismatches 25; Indels 2; Gaps 1;

OY 1 FLRIHPDGRVDGVRKSDPHIKLOLAEBRGVSIKVCANRYLAMKEDGRLLASKCVTD 60
DB 37 FLRIHPDGRVDGVRKSDPHIKLOLAEBRGVSIKVCANRYLAMKEDGRLLASKCVTD 60
OY 61 ECFEERLESNNYNTYRSRKYT--SWYVAL 88
DB 97 ECFEERLESNNYNTYRSRKYT--SWYVAL 88

RESULT 13
ID FGF1_HUMAN STANDARD; PRT; 155 AA.
AC P05230; P07502;
DT 13-AUG-1987 (Rel. 05, Created)
DT 13-AUG-1987 (Rel. 05, Last sequence update)

DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
DE growth factor) (AFGF) (Beta-endothelial cell growth factor) (ECGF-
DE beta).
GN FGF1 OR FGFA.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
OX NCBI_TaxID=9606;
RN (1)
RP SEQUENCE FROM N.A.
RX MEDLINE-86261805; PubMed-3523756;
RA Jaye M., Howk R., Burgess W., Ricca G.A., Chiu I.-M., Ravera M.W.,
RA O'Brien S.J., Modi W.S., Maciag T., Drohan W.N.;
RT "Human endothelial cell growth factor: cloning, nucleotide sequence,
RT and chromosome localization.";
RL Science 233:541-545(1986).
RN (2)
RP SEQUENCE FROM N.A.
RC TISSUE-Brain stem;
RX MEDLINE-89343957; PubMed-2474753;
RA Wang W.P., Lehtoma K., Varban M.L., Krishnan I., Chiu I.M.;
RT "Cloning of the gene coding for human class 1 heparin-binding growth
RT factor and its expression in fetal tissues.";
RL Mol. Cell. Biol. 9:2387-2395(1989).
RN (3)
RP SEQUENCE FROM N.A.
RC TISSUE-Brain stem;
RX MEDLINE-90265618; PubMed-1693186;
RA Chiu I.M., Wang W.P., Lehtoma K.;
RT "Alternative splicing generates two forms of mRNA coding for human
RT heparin-binding growth factor 1.";
RL Oncogene 5:755-762(1990).
RN (4)
RP SEQUENCE FROM N.A.
RX MEDLINE-90073637; PubMed-2590193;
RA Mergia A., Fischer E., Graves D., Tumolo A., Miller J.;
RA Gospodarowicz D., Abraham J.A., Shipley G.D., Fiddes J.C.;
RT "Structural analysis of the gene for human acidic fibroblast growth
RT factor.";
RL Biochem. Biophys. Res. Commun. 164:1121-1129(1989).
RN (5)
RP SEQUENCE FROM N.A.
RX MEDLINE-92019819; PubMed-1717925;
RA Wang W.P., Quick D., Balcerzak S.P., Needleman S.W., Chiu I.M.;
RT "Cloning and sequence analysis of the human acidic fibroblast growth
RT factor gene and its preservation in leukemia patients.";
RL Oncogene 6:1521-1529(1991).
RN (6)
RP SEQUENCE FROM N.A.
RX MEDLINE-92202857; PubMed-1372643;
RA Li Y.L., Kha H., Golden J.A., Michielsen A.A.J., Goetzl E.J.,
RA Turk E.J.;
RT "An acidic fibroblast growth factor protein generated by alternate
RT splicing acts like an antagonist.";
RL J. Exp. Med. 175:1073-1080(1992).
RN (7)
RP SEQUENCE OF 1-154 FROM N.A.
RX MEDLINE-94069734; PubMed-7504343;
RA Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;
RT "The expression of acidic fibroblast growth factor (heparin-binding
RT growth factor-1) and cytokine genes in human cardiac allografts and T
RT cells.";
RL Transplantation. 56:1177-1182(1993).
RN (8)
RP SEQUENCE OF 1-40 FROM N.A.
RX MEDLINE-90365758; PubMed-2393407;
RA Crumley G., Dionne C.A., Jaye M.;
RT "The gene for human acidic fibroblast growth factor encodes two
RT upstream exons alternatively spliced to the first coding exon.";
RL Biochem. Biophys. Res. Commun. 171:7-13(1990).
RN (9)
RP SEQUENCE OF 16-155.


```

OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_TaxId=9823;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Heart;
RX MEDLINE=92062117; Pubmed-1719973;
RA Schmidt M., Sharma H.S., Schott R.J., Schaper W.;
RT "Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart.";
RL Blochem. Biophys. Res. Commun. 180:853-859(1991).
RN [2]
RP SEQUENCE OF 22-41.
RX MEDLINE=89231704; Pubmed-2714282;
RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
RA Sharma H.S., Schaper W.;
RT "Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.";
RL Eur. J. Biochem. 181:67-73(1989).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL: X60317; CAA42869.1; -.
DR PIR: S03954; S03954.
DR HSSP: P05230; 2AXM.
DR InterPro: IPR002209; HBGF_FGF.
DR Pfam: PF00167; FGF_1.
DR ProDom: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 >152 HEPARIN-BINDING GROWTH FACTOR 1.
FT CHAIN 22 >152 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
FT CONFLICT 31 31 C->S (IN REF. 2).
FT CONFLICT 39 39 R->Y (IN REF. 2).
FT NON_TER 152 152
SQ SEQUENCE 152 AA; 17103 MW; AE853B0A92F9ABF4 CRC64;

Query Match 50.7%; Score 237; DB 1; Length 152;
Best Local Similarity 53.3%; Pred. No. 2.5e-20;
Matches 48; Conservative 12; Mismatches 28; Indels 2; Gaps 1;

QY 1 FLRIHPDGRVDGVREKSDPHIKLOQAERGVSISKVCANRYLAMKEDGRLASKCYTD 60
   ||||| ||| |||::||| ||:||| || | ||| :|||| | | | ::
DB 37 FLRIIPDGTVGDTRDSQHIOQLQSAESVGEVIKSTETGYQLAMDTSGLLYGSPSE 96
   || | |||| |::||| |||: ||: ||| |

QY 61 ECFFFERLESNNYNTYRSRKYT--SWYVAL 88
   || | |||| |::||| |||: ||: ||| |
DB 97 ECLFLERLEENHYNTYTYSKKHA EKMFVGL 126

RESULT 15
ID FGFI_BOVIN STANDARD; PRT; 155 AA.
AC P03968;
DT 23-OCT-1986 (Rel. 02, Created)
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DT 01-MAR-1989 (Rel. 10, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
DE growth factor) (AFGF) (Prostatropin) (Endothelial cell growth factor
DE beta and alpha chains) (Acidic eye-derived growth factor II) (EDGF
DE II).
GN FGF1 OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID:9913;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-Retina;
RX MEDLINE=89083506; PubMed=3205724;
RA Hailey C., Courtois Y., Laurent M.;
RT "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA."
RL Nucleic Acids Res. 16:10913-10913(1988).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE-Retina;
RX MEDLINE=89078619; PubMed=2849564;
RA Alterio J., Hailey C., Brou C., Soussi T., Courtois Y., Laurent M.;
RT "Characterization of a bovine acidic FGF cDNA clone and its
RT expression in brain and retina."
RL FEBS Lett. 242:41-46(1988).
RN [3]
RP SEQUENCE OF 2-155.
RX MEDLINE=87016918; PubMed=3532107;
RA Burgess W.H., Wehlman T., Marshak D.R., Fraser B.A., Maciag T.;
RT "Structural evidence that endothelial cell growth factor beta is the
RT precursor of both endothelial cell growth factor alpha and acidic
RT fibroblast growth factor."
RL Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
RN [4]
RP SEQUENCE OF 2-155.
RX MEDLINE=87026586; PubMed=3768327;
RA Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D.,
RA Bordoli R.S., McKeenan W.L.;
RT "Complete primary structure of prostatropin, a prostate epithelial
RT cell growth factor."
RL Biochemistry 25:4988-4993(1986).
RN [5]
RP SEQUENCE OF 16-155.
RX MEDLINE=86070224; PubMed=4071057;
RA Gimenez-Gallego G., Rodkey J., Bennett C., Rios-Candolare M.,
RA Disalvo J., Thomas K.;
RT "Brain-derived acidic fibroblast growth factor: complete amino acid
RT sequence and homologies."
RL Science 230:1385-1388(1985).
RN [6]
RP SEQUENCE OF 16-44, AND COMPOSITION.
RX MEDLINE=86055750; PubMed=4065099;
RA Boehlen P., Esch F., Baird A., Gospodarowicz D.;
RT "Acidic fibroblast growth factor (FGF) from bovine brain:
RT amino-terminal sequence and comparison with basic FGF."
RL EMBO J. 4:1951-1956(1985).
RN [7]
RP SEQUENCE OF 16-56 FROM N.A.
RX MEDLINE=86261806; PubMed=2425435;
RA Abraham J.A., Margia A., Whang J.L., Tumolo A., Friedman J.,
RA Hjerriild K.A., Gospodarowicz D., Fiddes J.C.;
RT "Nucleotide sequence of a bovine clone encoding the angiogenic
RT protein, basic fibroblast growth factor."
RL Science 233:545-548(1986).
RN [8]
RP SEQUENCE OF 16-45.
RX MEDLINE=89231704; PubMed=2714282;
RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethke N.,
RA Sharma H.S., Schaper W.;
RT "Isolation of heparin-binding growth factors from bovine, porcine and
RT canine hearts."

RL Eur. J. Biochem. 181:67-73(1989).
RN [9]
RP SEQUENCE OF 1-18 FROM N.A.
RA Philippe J.M., Renaud F., Desset S., Laurent M.;
RL Submitted (JUL-1992) to the EMBL/GenBank/DBJ databases.
RN [10]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE-91095983; PubMed-1702556;
RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
RT Hsu B.T., Rees D.C.;
RT "Three-dimensional structures of acidic and basic fibroblast growth
factors."
RL Science 251:90-93(1991).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES bFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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DR EMBL; M13439; AAA30516.1; -
DR EMBL; X13221; CAA31610.1; -
DR EMBL; X14032; CAA32192.1; -
DR EMBL; M35608; AAA30517.1; -
DR EMBL; X66446; CAA47063.1; -
DR EMBL; M97660; AAA30563.1; -
DR EMBL; M97661; AAA30564.1; -
DR PIR; A01385; GKBOA.
DR PIR; A25043; A25043.
DR PIR; B25043; B25043.
DR PIR; C25043; C25043.
DR PIR; A24477; A24477.
DR PIR; B24663; B24663.
DR PIR; S02102; S02102.
DR PDB; 1BAR; 31-OCT-93.
DR PDB; 1AFC; 31-OCT-93.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;
KW 3D-structure.
FT PROPEP 1 15
FT CHAIN 2 155
FT CHAIN 16 155
FT CHAIN 22 155
FT MOD_RES 2 2
FT BINDING 24 28
FT BINDING 113 116
FT STRAND 27 31
FT TURN 32 34
FT STRAND 37 40
FT TURN 42 43
FT STRAND 46 49
FT HELIX 55 57
FT STRAND 59 61
FT STRAND 69 69
FT STRAND 71 73
FT STRAND 79 82
FT TURN 84 85
ENDOTHELIAL CELL GROWTH FACTOR BETA.
HEPARIN-BINDING GROWTH FACTOR 1.
ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
ACETYLATION.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).

	FT	STRAND	87	91
	FT	HELIX	96	98
	FT	STRAND	100	100
	FT	STRAND	103	104
	FT	TURN	106	107
	FT	STRAND	110	111
	FT	STRAND	113	114
	FT	TURN	116	121
	FT	STRAND	123	123
	FT	STRAND	126	126
	FT	TURN	128	129
	FT	STRAND	132	132
	FT	STRAND	134	134
	FT	HELIX	135	137
	FT	TURN	140	141
	FT	TURN	144	145
	FT	STRAND	147	150
SO	SEQUENCE		155 AA; 17493 MW; F636641F189F9BFD CRC64;	

	QY	1 FLRIHPDGRVDGVREKSDPHIKLQLOAEERGVSVIKGVCANRYLAMKEDGRLLASKCVTD 60
	Db	37 FLRIHPDGRVDGVREKSDPHIKLQLOAEERGVSVIKGVCANRYLAMKEDGRLLASKCVTD 60
	QY	61 ECFEERLESNNYNTYRSKRYTS--WYVAL 88
	Db	97 ECLFLERLEENHYNTYISKKAHEKHWFGVL 126

Search completed: June 2, 2002, 18:05:15
Job time: 243 sec

Sun Jun 2 18:28:51 2002

us-09-642-277a-3.rsp

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:02:20 ; Search time 35.96 Seconds

(without alignments)
235.146 Million cell updates/sec

Title: US-09-642-277A-3

Perfect score: 467
Sequence: 1 FLRIHEDGRVDGVREKSDPH.....ESNNYNTYRSRKYTSWYVAL 88Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0
Maximum DB seq length: 200000000Post-processing: Minimum Match 0%
Maximum Match 100%

Listing first 45 summaries

Database :

PIR_71:*
1: p1r1:*
2: p1r2:*
3: p1r3:*
4: p1r4:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	467	100.0	210	2 A32398	basic fibroblast g
2	463	99.1	137	2 I46711	fibroblast growth
3	463	99.1	146	1 S00185	basic fibroblast g
4	463	99.1	157	1 GKBOB	basic fibroblast g
5	458	98.1	154	2 A31674	basic fibroblast g
6	458	98.1	154	2 C37360	basic fibroblast g
7	431	92.3	164	2 S31622	basic fibroblast g
8	424	90.8	189	2 A48834	basic fibroblast g
9	392	83.9	155	1 A40117	basic fibroblast g
10	250	53.5	155	1 A60721	acidic fibroblast
11	246	52.7	155	2 S04147	acidic fibroblast
12	246	52.7	155	2 D37360	acidic fibroblast
13	243	52.0	155	2 A60130	acidic fibroblast
14	240	51.4	155	1 A33665	acidic fibroblast
15	237	50.7	152	2 JH0476	acidic fibroblast
16	233	49.9	155	2 JH0055	acidic fibroblast
17	229	49.0	155	1 GKBOA	acidic fibroblast
18	202	43.3	125	2 JC4627	fibroblast growth
19	194	41.5	125	2 A32484	basic fibroblast g
20	191.5	41.0	264	2 A36207	fibroblast growth
21	191.5	41.0	266	2 S68144	fibroblast growth
22	190	40.7	220	2 I50588	fibroblast growth
23	187.5	40.1	267	1 TVHURS	fibroblast growth
24	186	39.8	237	1 S39582	transforming prote
25	185.5	39.7	245	1 TVMST2	transforming prote
26	184.5	39.5	239	1 S04742	fibroblast growth
27	182.5	39.1	194	2 I50710	fibroblast growth
28	178.5	38.2	208	2 S14192	fibroblast growth
29	177.5	38.0	208	2 S20102	fibroblast growth

30	173.5	37.2	187	2 S23595	embryonic fibrobla
31	172.5	36.9	206	1 TVHURS	fibroblast growth
32	169.5	36.3	206	2 JC4268	fibroblast growth
33	168.5	36.1	192	2 S54407	embryonic fibrobla
34	160	34.3	194	2 I48610	keratinocyte growth
35	159.5	34.2	202	1 TVMSHS	fibroblast growth
36	159	34.0	194	2 S49501	keratinocyte growth
37	158	33.8	194	1 A36301	fibroblast growth
38	157	33.6	194	2 S26049	fibroblast growth
39	154	33.0	208	2 JC7082	fibroblast somatot
40	152	32.5	207	2 JC5940	fibroblast growth
41	152	32.5	208	2 S66486	fibroblast growth
42	152	32.5	208	2 A48137	fibroblast growth
43	151	32.3	207	2 JC5941	fibroblast growth
44	151	32.3	211	2 JC7353	fibroblast growth
45	147	31.5	212	2 JC7511	fibroblast growth

ALIGNMENTS

RESULT 1
A32398 basic fibroblast growth factor precursor, 22.5K form - human
N;Alternate names: bFGF; fibroblast growth factor 2; prostatic growth factor; prosta
N;Contains: basic fibroblast growth factor, 18K form
C;Species: Homo sapiens (man)
C;Date: 31-Jul-1989 #sequence revision 31-Dec-1993 #text change 21-Jul-2000
C;Accession: A32398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824;
R;Prats, H.; Kaghad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Liauzun, P.; Chal
Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989
A;Title: High molecular mass forms of basic fibroblast growth factor are initiated b
A;Reference number: A32398; MUID:89184522
A;Accession: A32398
A;Molecule type: mRNA
A;Residues: 1-210 <PRA>
A;Cross-references: GB:J04513; MID:g183083; PIDN:AAA52531.1; PID:g459811
R;Shibata, E.; Balrd, A.; Florkiewicz, R.Z.
Growth Factors 4, 277-287, 1991
A;Title: Functional characterization of the human basic fibroblast growth factor gen
A;Reference number: A61537; MUID:92110035
A;Accession: A61537
A;Molecule type: DNA
A;Residues: 1-114 <SHI>
A;Note: authors translated the codon GGA for residue 47 as Ala
R;Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.
FEBS Lett. 213, 189-194, 1987
A;Title: Cloning and expression of cDNA encoding human basic fibroblast growth facto
A;Reference number: A26642; MUID:87162468
A;Accession: A26642
A;Molecule type: mRNA
A;Residues: 56-210 <KUR>
A;Cross-references: GB:M27968; MID:g182562; PIDN:AAA52448.1; PID:g182563
R;Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.
Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986
A;Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organiza
A;Reference number: A90924; MUID:87217066
A;Accession: B32878
A;Molecule type: mRNA
A;Residues: 56-210 <ABR>
A;Note: the authors translated the codon GAA for residue 108 as Gly
R;Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, D
EMBO J. 5, 2523-2528, 1986
A;Title: Human basic fibroblast growth factor: nucleotide sequence and genomic organ
A;Reference number: S00297; MUID:87053817
A;Accession: S00297
A;Status: not compared with conceptual translation
A;Molecule type: DNA
A;Residues: 1-155 <AB2>
A;Note: the authors translated the codon GAA for residue 108 as Gly
R;Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.
Jpn. J. Cancer Res. 82, 1263-1270, 1991
A;Title: Characterization of high-molecular-mass forms of basic fibroblast growth fa

rcinogenesis.
A:Reference number: A54316; MUID:92091228
A:Accession: A54316
A:Molecule type: protein
A:Residues: 'XX', 86-88, 'X', 90-91, 'X', 93-95 <SH3>
A:Experimental source: C-121 hepatocellular carcinoma cell line
A>Note: sequence extracted from NCBI backbone (NCBIP:71595)
A:Accession: B54316
A:Molecule type: protein
A:Residues: 'XX', 19, 'X', 21-29 <SH2>
A>Note: sequence extracted from NCBI backbone (NCBIP:71594)
R:Feige, J.J.; Bradley, J.D.; Fryburg, K.; Faris, J.; Cousens, L.C.; Barr, P.J.; Baird, J. Cell Biol. 109, 3105-3114, 1989
A:Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylation of heparin
A:Reference number: A33624; MUID:90078343
A:Accession: A33624
A>Status: preliminary
A:Molecule type: protein
A:Residues: 57-210 <FEI>
R:Storj, M.T.; Esch, F.; Shimazaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
Biochem. Biophys. Res. Commun. 142, 702-709, 1987
A:Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isolated from human brain
A:Reference number: A25824; MUID:87156686
A:Accession: A25824
A:Molecule type: protein
A:Residues: 57-77 <STO>
A:Experimental source: prostate
R:Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Res. Commun. 135, 541-548, 1986
A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal
A:Reference number: A90122; MUID:86186784
A:Accession: B24243
A:Molecule type: protein
A:Residues: 65-102, 'X', 104-105 <GIM>
A:Experimental source: brain
R:Gautschi, P.; Frater-Schroder, M.; Bohlén, P.
FEBS Lett. 204, 203-207, 1986
A:Title: Partial molecular characterization of endothelial cell mitogens from human brain
A:Reference number: A91364; MUID:86275260
A:Accession: B24301
A:Molecule type: protein
A:Residues: 65-88, 'X', 90-98, 'X', 100 <GAU>
R:Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.
Biochem. Biophys. Res. Commun. 144, 543-550, 1987
A:Title: A form of human basic fibroblast growth factor with an extended amino terminus
A:Reference number: S42242; MUID:87213238
A:Accession: S42242
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 54-210 <SOM>
A:Cross-references: EMBL:M17599; NID:g183086; PIDN:AAA52534.1; PID:g183087
R:Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.
Biochemistry 33, 10229-10248, 1994
A:Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor
A:Reference number: A55784; MUID:94347757
A:Accession: B55784
A:Molecule type: protein
A:Residues: 54-71 <PAN>
R:Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.
Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992
A:Title: Reverse transcription with nested polymerase chain reaction shows expression of
clients.
A:Reference number: I52267; MUID:93038590
A:Accession: I52267
A>Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 95-182 <RES>
A:Cross-references: GB:S47380; NID:g256535; PIDN:AADI3853.1; PID:g4261553
A:Experimental source: granulosa cells
R:Patry, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H.
FEBS Lett. 349, 23-28, 1994
A:Title: Purification and characterization of the 210-amino acid recombinant basic fibroblast
A:Reference number: S46253; MUID:94320639

A:Accession: S46253
A:Molecule type: protein
A:Residues: 39-53; 65-88 <PAT>
A>Note: recombinant gene expressed in Escherichia coli
C:Genetics:
A:Gene: GDB:FCF2; FCFB
A:Cross-references: GDB:119910; OMIM:134920
A:Map position: 4q25-4q27
A:Start codon: CTT
C:Superfamily: fibroblast growth factor
C:Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; m1
F:1-210/Product: basic fibroblast growth factor, 22.5K form #status predicted <MA2>
F:65-210/Product: basic fibroblast growth factor, 18K form #status predicted <MA2>
F:82-86/Region: heparin binding #status predicted
F:171-174/Region: heparin binding #status predicted

Query Match 100.0%; Score 467; DB 2; Length 210;
Best Local Similarity 100.0%; Pred. No. 5.4e-45;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDGVREKSDPHIKLOLAEEGVYSIKGVCANRYLAMKEDGRLLASKCVTD 60
|||||
Db 95 FLRIHPDGRVDGVREKSDPHIKLOLAEEGVYSIKGVCANRYLAMKEDGRLLASKCVTD 154

QY 61 ECFEERLESNNNTYRSRKYTSWYVAL 88
|||||
Db 155 ECFEERLESNNNTYRSRKYTSWYVAL 182

RESULT 2
146711
fibroblast growth factor - rabbit (fragment)
C:Species: Oryctolagus cuniculus (domestic rabbit)
C:Date: 14-Feb-1997 #sequence_revision 14-Feb-1997 #text_change 16-Jul-1999
C:Accession: I46711
R:Winkles, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.F.; Liao, G.
Am. J. Pathol. 143, 518-527, 1993

A:Title: Elevated expression of basic fibroblast growth factor in an immortalized rat
A:Reference number: I46711; MUID:93343209
A:Accession: I46711
A>Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-137 <WIN>
A:Cross-references: GB:U12034; NID:g165014; PIDN:AAA31248.1; PID:g165015
C:Superfamily: fibroblast growth factor

Query Match 99.1%; Score 463; DB 2; Length 137;
Best Local Similarity 98.9%; Pred. No. 9.4e-45;
Matches 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDGVREKSDPHIKLOLAEEGVYSIKGVCANRYLAMKEDGRLLASKCVTD 60
|||||
Db 31 FLRIHPDGRVDGVREKSDPHIKLOLAEEGVYSIKGVCANRYLAMKEDGRLLASKCVTD 90

QY 61 ECFEERLESNNNTYRSRKYTSWYVAL 88
|||||
Db 91 ECFEERLESNNNTYRSRKYTSWYVAL 118

RESULT 3
S00185
basic fibroblast growth factor - sheep
N:Alternate names: prostatripin
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
C:Accession: S00185
R:Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabri, L.J.; Nice, E.C.; Rubira, M.R.; Ba
FEBS Lett. 224, 128-132, 1987
A:Title: Primary structure of ovine pituitary basic fibroblast growth factor
A:Reference number: S00185; MUID:88055577
A:Accession: S00185

A:Molecule type: protein
 A:Residues: 1-146 <SIM>
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor; heparin binding; mitogen
 F:18-22/Region: heparin binding #status predicted
 F:107-110/Region: heparin binding #status predicted

Query Match 99.1%; Score 463; DB 1; Length 146;
 Best Local Similarity 98.9%; Pred. No. 1e-44;
 Matches 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDCVREKSDPHIKLOLAERGVSISKVCANRYLAMKEDGRLASKCVTD 60
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 31 FLRIHPDGRVDCVREKSDPHIKLOLAERGVSISKVCANRYLAMKEDGRLASKCVTD 90

QY 61 ECEFFERLESNNYNTYRSRKYTSWYVAL 88
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 91 ECEFFERLESNNYNTYRSRKYTSWYVAL 118

RESULT 4

GKBOB

basic fibroblast growth factor precursor - bovine (fragment)
 N:Alternate names: bFGF; kidney-derived growth factor; prostatin
 C:Species: Bos primigenius taurus (cattle)
 C:Date: 13-Aug-1986 #sequence revision 02-Jun-1995 #text_change 24-Nov-1999
 C:Accession: A24663; A32878; A33784; A61550; A60310; A61094; A01386; A60316; A22
 R:Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Gosp
 Science 233, 545-548, 1986

A:Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fi
 A:Reference number: A94290; MUID:86261806
 A:Accession: A24663
 A:Molecule type: mRNA
 A:Residues: 3-157 <AB2>
 A:Cross-references: GB:M13440; NID:g163049; PIDN:AAA30518.1; PID:g163050
 A:Experimental source: pituitary gland
 R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.
 Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986

A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization
 A:Reference number: A90924; MUID:87217066
 A:Accession: A32878
 A:Molecule type: mRNA
 A:Residues: 3-157 <AB2>
 R:Miller, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Stegel, N.R.; Deuel, T.F.
 Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989
 A:Title: A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purifica
 A:Reference number: A33784; MUID:90121211
 A:Accession: A33784
 A:Molecule type: protein
 A:Residues: 1-14 <ML>

A:Note: demonstration of a possible alternative initiator or splice junction
 R:Bertolini, J.; Hearn, M.T.W.
 Mol. Cell. Endocrinol. 51, 187-199, 1987
 A:Title: Isolation, characterization and tissue localisation of an N-terminal-truncated
 A:Reference number: A61550; MUID:87247652
 A:Accession: A61550
 A:Molecule type: protein
 A:Residues: 16-35 <BER>
 R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
 Mol. Cell. Endocrinol. 49, 189-194, 1987
 A:Title: Isolation and partial characterization of basic fibroblast growth factor from h
 A:Reference number: A61551; MUID:87162856
 A:Accession: A61551
 A:Molecule type: protein
 A:Residues: 27-35, 'X', '37-41 <UE3>

A:Experimental source: testes
 A:Note: this form appears to be identical to the renal form
 R:Ueno, N.; Baird, A.; Esch, F.; Shimazaki, S.; Ling, N.; Guillemin, R.
 Regul. Pept. 16, 135-145, 1986
 A:Title: Purification and partial characterization of a mitogenic factor from bovine liv
 A:Reference number: A60310; MUID:87119165
 A:Accession: A60310

A:Molecule type: protein
 A:Residues: 23-35, 'X', '37-42 <UEN>
 A:Experimental source: liver
 R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
 Biochem. Biophys. Res. Commun. 138, 580-588, 1986
 A:Title: Isolation of an amino terminal extended form of basic fibroblast growth fa
 A:Reference number: A24819; MUID:86295737
 A:Contents: annotation

A:Note: the amino end of this form was blocked; the peptide composition matched wha
 R:Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlén, P.
 Endocrinology 118, 82-90, 1986

A:Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicoch
 A:Reference number: A61094; MUID:86081530
 A:Accession: A61094

A:Molecule type: protein
 A:Residues: 12-25, 27-35, 'X', '37-40 <GOS>
 A:Experimental source: adrenal gland
 R:Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gosp
 Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985

A:Title: Primary structure of bovine pituitary basic fibroblast growth factor (FGF)
 A:Reference number: A01386; MUID:86016731
 A:Accession: A01386

A:Molecule type: protein
 A:Residues: 12-157 <ESC>
 A:Experimental source: pituitary gland
 R:Baird, A.; Esch, F.; Bohlén, P.; Ling, N.; Gospodarowicz, D.
 Regul. Pept. 12, 201-213, 1985

A:Title: Isolation and partial characterization of an endothelial cell growth factor
 A:Reference number: A60316; MUID:86095426
 A:Accession: A60316
 A:Molecule type: protein
 A:Residues: 27-35, 'X', '37-43 <BAI>
 A:Experimental source: kidney
 R:Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
 Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984

A:Title: Isolation and partial molecular characterization of pituitary fibroblast gr
 A:Reference number: A22054; MUID:84298139
 A:Accession: A22054
 A:Molecule type: protein
 A:Residues: 12-26 <BOH>
 C:Comment: The acidic and basic fibroblast growth factors are the major endothelial-
 el types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulat
 C:Comment: This protein binds heparin more strongly than does aFGF.
 C:Superfamily: fibroblast growth factor

C:Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; he
 F:1-157/Product: basic fibroblast growth factor, uterine form #status predicted <MA
 F:4-157/Product: basic fibroblast growth factor, pituitary gamma form #status expert
 F:12-157/Product: basic fibroblast growth factor, pituitary alpha form #status expert
 F:16-157/Product: basic fibroblast growth factor, pituitary short form #status predi
 F:23-157/Product: basic fibroblast growth factor, hepatic form #status experimental
 F:27-157/Product: basic fibroblast growth factor, renal form #status experimental
 F:29-33, 118-121/Region: heparin binding #status predicted
 F:4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probabl

Query Match 99.1%; Score 463; DB 1; Length 157;
 Best Local Similarity 98.9%; Pred. No. 1.1e-44;
 Matches 87; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDCVREKSDPHIKLOLAERGVSISKVCANRYLAMKEDGRLASKCVTD 60
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 42 FLRIHPDGRVDCVREKSDPHIKLOLAERGVSISKVCANRYLAMKEDGRLASKCVTD 101

QY 61 ECEFFERLESNNYNTYRSRKYTSWYVAL 88
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 102 ECEFFERLESNNYNTYRSRKYTSWYVAL 129

RESULT 5

A31674

basic fibroblast growth factor precursor - rat
 N:Alternate names: bFGF
 C:Species: Rattus norvegicus (Norway rat)

C:Date: 21-May-1990 #sequence_revision 21-May-1990 #text_change 16-Jul-1999
 C:Accession: A31674; S00876; S24309
 R:Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird, A.;
 Biochem. Biophys. Res. Commun. 157, 256-263, 1988
 A:Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth
 A:Reference number: A31674; MUID:89061721
 A:Accession: A31674
 A:Molecule type: mRNA
 A:Residues: 1-154 <SHI>
 A:Cross-references: GB:M22427; NID:g204285; PIDN:AAA41210.1; PID:g204286
 R:Kurokawa, T.; Seno, M.; Igarashi, K.
 Nucleic Acids Res. 16, 5201, 1988
 A:Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.
 A:Reference number: S00876; MUID:88262516
 A:Accession: S00876
 A:Molecule type: mRNA
 A:Residues: 1-154 <KUR>
 A:Cross-references: EMBL:X07285; NID:g56203; PIDN:CAA30265.1; PID:g56204
 R:El-Husseini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.
 Biochim. Biophys. Acta 1131, 314-316, 1992
 A:Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA conta
 A:Reference number: S24309; MUID:92329546
 A:Accession: S24309
 A:Status: preliminary; translation not shown
 A:Molecule type: mRNA
 A:Residues: 35-154 <ELH>
 A:Cross-references: EMBL:X61697; NID:g56143; PIDN:CAA43863.1; PID:g56144
 C:Superfamily: fibroblast growth factor
 C:Keywords: growth factor
 F:1-9/Domain: signal sequence #status predicted <SIG>
 F:10-154/Product: basic fibroblast growth factor #status predicted <MAT>

Query Match. 98.1%; Score 458; DB 2; Length 154;
 Best Local Similarity 96.6%; Pred. No. 3.9e-44;
 Matches 85; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKIQLOAERGVSISIKVCANRYLAMKEDGRLASKCYTD 60
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 Db 39 FLRIHPDGRVDGVRKSDPHIKIQLOAERGVSISIKVCANRYLAMKEDGRLASKCYTE 98
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OY 61 ECFPERLESNNYNTYRSRKYTSWYAL 88
 |||||||
 Db 99 ECFPERLESNNYNTYRSRKYTSWYAL 126
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RESULT 6
 C37360
 basic fibroblast growth factor - mouse
 C:Species: Mus musculus (house mouse)
 C:Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
 C:Accession: C37360
 R:Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin, G.R.
 Dev. Biol. 138, 454-463, 1990
 A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization
 A:Reference number: A37360; MUID:90201563
 A:Accession: C37360
 A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 1-154 <HEB>
 A:Cross-references: GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239
 C:Superfamily: fibroblast growth factor

Db 99 ECFPERLESNNYNTYRSRKYTSWYAL 126
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RESULT 7
 S31622
 basic fibroblast growth factor - short-tailed opossum (Monodelphis domestica) (fragm
 C:Species: Monodelphis domestica
 C:Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 12-Apr-1995
 C:Accession: S31622
 R:Kusewilt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D.
 submitted to the EMBL Data Library, September 1992
 A:Description: Characterization of cDNA encoding basic fibroblast growth factor of t
 A:Reference number: S31622
 A:Accession: S31622
 A:Status: preliminary
 A:Molecule type: DNA
 A:Residues: 1-164 <KUS>
 A:Cross-references: EMBL:Z15154
 C:Superfamily: fibroblast growth factor

Query Match. 92.3%; Score 431; DB 2; Length 164;
 Best Local Similarity 92.0%; Pred. No. 4.6e-41;
 Matches 81; Conservative 5; Mismatches 2; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKIQLOAERGVSISIKVCANRYLAMKEDGRLASKCYTD 60
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 Db 49 FLRIHPDGRVDGVRKSDPHIKIQLOAERGVSISIKVCANRYLAMKEDGRLALKCYTE 108
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OY 61 ECFPERLESNNYNTYRSRKYTSWYAL 88
 |||||||
 Db 109 ECFPERLESNNYNTYRSRKYTSWYAL 136
 |||||||

RESULT 8
 A48834
 basic fibroblast growth factor - chicken
 C:Species: Gallus gallus (chicken)
 C:Date: 01-Dec-1993 #sequence_revision 18-Nov-1994 #text_change 16-Jul-1999
 C:Accession: A48834; S23636
 R:Bojja, A.Z.; Meijers, C.; Zeller, R.
 Dev. Biol. 157, 110-118, 1993
 A:Title: Expression of alternatively spliced bFGF first coding exons and antisense m
 A:Reference number: A48834; MUID:93246053
 A:Accession: A48834
 A:Status: preliminary
 A:Molecule type: nucleic acid
 A:Residues: 1-189 <BOR>
 A:Note: sequence extracted from NCBI backbone (NCBIN:131000, NCBI:P:131001)
 R:Miltrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
 Development 109, 387-393, 1990
 A:Title: Fibroblast growth factor during mesoderm induction in the early chick embryo
 A:Reference number: S23636; MUID:90382254
 A:Accession: S23636
 A:Status: preliminary
 A:Molecule type: DNA
 A:Residues: 95-128 <MIT>
 A:Cross-references: EMBL:X56804; NID:g62855; PIDN:CAA40139.1; PID:g62856
 C:Superfamily: fibroblast growth factor

Query Match. 90.8%; Score 424; DB 2; Length 189;
 Best Local Similarity 90.9%; Pred. No. 3.3e-40;
 Matches 80; Conservative 4; Mismatches 4; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKIQLOAERGVSISIKVCANRYLAMKEDGRLASKCYTD 60
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 Db 74 FLRIHPDGRVDGVRKSDPHIKIQLOAERGVSISIKVCANRYLAMKEDGRLALKCYTE 133
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OY 61 ECFPERLESNNYNTYRSRKYTSWYAL 88
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:01:37 ; Search time 28.4 Seconds

(without alignments)
75.685 Million cell updates/sec

Title: US-09-642-277A-3

Perfect score: 467

Sequence: 1 FLRIHPDGRVDGVRKSDPH.....ESNNYNTYRSKXTSWYVAL 88

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 231628 segs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%
Listing first 45 summaries

Database: Issued Patents_AA:*

1: /cgn2_6/ptodata/2/1aa/5A_COMB.pep:*
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Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	467	100.0	132	1 US-08-100-744-4	Sequence 4, Appli
2	467	100.0	132	1 US-08-284-784-4	Sequence 4, Appli
3	467	100.0	132	2 US-08-854-811-4	Sequence 4, Appli
4	467	100.0	140	5 PCT-US90-06962-1	Sequence 11, Appli
5	467	100.0	146	2 US-08-231-894A-11	Patent No. 5464943
6	467	100.0	146	6 5464943-6	Patent No. 5464943
7	467	100.0	146	6 5464943-8	Patent No. 5464943
8	467	100.0	147	6 5175147-6	Patent No. 5175147
9	467	100.0	150	1 US-08-441-629-8	Sequence 8, Appli
10	467	100.0	150	3 US-08-776-207-8	Sequence 8, Appli
11	467	100.0	150	5 PCT-US95-09172-8	Sequence 8, Appli
12	467	100.0	153	3 US-08-325-186-2	Sequence 2, Appli
13	467	100.0	154	2 US-08-438-439C-24	Sequence 24, Appli
14	467	100.0	154	3 US-08-325-186-1	Sequence 1, Appli
15	467	100.0	154	5 PCT-US91-02186-6	Sequence 6, Appli
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17	467	100.0	155	1 US-07-959-369-7	Sequence 7, Appli
18	467	100.0	155	1 US-08-023-757-2	Sequence 2, Appli
19	467	100.0	155	1 US-07-842-177A-1	Sequence 2, Appli
20	467	100.0	155	1 US-08-177-502-2	Sequence 2, Appli
21	467	100.0	155	1 US-08-439-725A-10	Sequence 10, Appli
22	467	100.0	155	1 US-08-325-632-1	Sequence 1, Appli
23	467	100.0	155	1 US-08-462-169B-10	Sequence 10, Appli
24	467	100.0	155	2 US-08-867-471-10	Sequence 10, Appli
25	467	100.0	155	2 US-08-438-439C-14	Sequence 14, Appli
26	467	100.0	155	2 US-08-951-822-28	Sequence 28, Appli
27	467	100.0	155	3 US-09-103-079-10	Sequence 10, Appli

28	467	100.0	155	3 US-08-705-245-6	Sequence 6, Appli
29	467	100.0	155	3 US-08-897-924A-25	Sequence 25, Appli
30	467	100.0	155	3 US-08-718-904-11	Sequence 11, Appli
31	467	100.0	155	3 US-09-023-082A-17	Sequence 17, Appli
32	467	100.0	155	3 US-09-030-613-3	Sequence 3, Appli
33	467	100.0	155	4 US-09-098-628-2	Sequence 2, Appli
34	467	100.0	155	4 US-09-451-905-3	Sequence 3, Appli
35	467	100.0	155	4 US-09-368-951-28	Sequence 28, Appli
36	467	100.0	155	5 PCT-US91-02186-2	Sequence 2, Appli
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38	467	100.0	158	2 US-08-599-895-3	Sequence 3, Appli
39	467	100.0	158	3 US-09-211-290-3	Sequence 3, Appli
40	467	100.0	158	3 US-09-322-676-3	Sequence 3, Appli
41	467	100.0	158	4 US-09-220-077C-2	Sequence 2, Appli
42	467	100.0	158	4 US-09-466-036A-3	Sequence 3, Appli
43	467	100.0	210	1 US-08-464-590A-14	Sequence 14, Appli
44	467	100.0	210	2 US-08-207-412B-9	Sequence 9, Appli
45	467	100.0	210	3 US-09-093-585-14	Sequence 14, Appli

ALIGNMENTS

RESULT 1

US-08-100-744-4
Sequence 4, Application US/08100744

Patent No. 5563046

GENERAL INFORMATION:

APPLICANT: MASCARENHAS, DESMOND

APPLICANT: ZHANG, SUNNY

APPLICANT: OLSON, PAMELA

APPLICANT: OLSEN, DAVID

APPLICANT: CARRILLO, PEDRO A.

TITLE OF INVENTION: POLYPEPTIDE FUSIONS TO

TITLE OF INVENTION: INTERLEUKIN-1-LIKE POLYPEPTIDES

NUMBER OF SEQUENCES: 12

CORRESPONDENCE ADDRESS:

ADDRESSEE: MORRISON & FOERSTER

STREET: 755 Page Mill Road

CITY: Palo Alto

STATE: California

COUNTRY: USA

ZIP: 94304-1018

COMPUTER READABLE FORM:

MEDIUM TYPE: floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/100,744

FILING DATE: 02-AUG-1993

CLASSIFICATION: 435

ATTORNEY/AGENT INFORMATION:

NAME: LUTHER, BARBARA J.

REGISTRATION NUMBER: 33,954

REFERENCE/DOCKET NUMBER: 22095-20275.00

TELECOMMUNICATION INFORMATION:

TELEPHONE: (415) 813-5600

TELEFAX: (415) 494-0792

TELEX: 706141

INFORMATION FOR SEQ ID NO: 4:

SEQUENCE CHARACTERISTICS:

LENGTH: 132 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-100-744-4

Query Match 100.0%; Score 467; DB 1; Length 132;
Best Local Similarity 100.0%; Pred. No. 1.2e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKIQLQAERGVSIGVCANRYLAMKEDGRLASKCVTD 60
Db 17 FLRIHPDGRVDGVRKSDPHIKIQLQAERGVSIGVCANRYLAMKEDGRLASKCVTD 76
OY 61 ECTFFERLESNNYNTYRSKRYTSWYVAL 88
Db 77 ECTFFERLESNNYNTYRSKRYTSWYVAL 104

RESULT 2

US-08-284-784-4

; Sequence 4, Application US/08284784
; Patent No. 5629172

GENERAL INFORMATION:

APPLICANT: MASCARENHAS, DESMOND

APPLICANT: ZHANG, YANG

APPLICANT: OLSON, PAMELA S.

APPLICANT: OLSEN, DAVID R.

APPLICANT: CARRILLO, PEDRO A.

TITLE OF INVENTION: EXPRESSION OF FUSION POLYPEPTIDES

TITLE OF INVENTION: TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER SEQUENCES

NUMBER OF SEQUENCES: 44

CORRESPONDENCE ADDRESS:

ADDRESSEE: MORRISON & FOERSTER

STREET: 755 Page Mill Road

CITY: Palo Alto

STATE: California

COUNTRY: USA

ZIP: 94304-1018

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/284,784

FILING DATE: 02-AUG-1994

CLASSIFICATION: 530

ATTORNEY/AGENT INFORMATION:

NAME: PARK, FREDIE K.

REGISTRATION NUMBER: 35,636

REFERENCE/DOCKET NUMBER: 22095-20275.20

TELECOMMUNICATION INFORMATION:

TELEPHONE: (415) 813-5600

TELEFAX: (415) 494-0792

TELEX: 706141

INFORMATION FOR SEO ID NO: 4:

SEQUENCE CHARACTERISTICS:

LENGTH: 132 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-284-784-4

Query Match

Best Local Similarity 100.0%; Score 467; DB 1; Length 132;

Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKIQLQAERGVSIGVCANRYLAMKEDGRLASKCVTD 60

Db 17 FLRIHPDGRVDGVRKSDPHIKIQLQAERGVSIGVCANRYLAMKEDGRLASKCVTD 76

OY 61 ECTFFERLESNNYNTYRSKRYTSWYVAL 88

Db 77 ECTFFERLESNNYNTYRSKRYTSWYVAL 104

RESULT 3

US-08-854-811-4

; Sequence 4, Application US/08854811
; Patent No. 5914254

GENERAL INFORMATION:

APPLICANT: MASCARENHAS, DESMOND

APPLICANT: ZHANG, YANG

APPLICANT: OLSON, PAMELA S.

APPLICANT: OLSEN, DAVID R.

APPLICANT: CARRILLO, PEDRO A.

TITLE OF INVENTION: EXPRESSION OF FUSION POLYPEPTIDES

TITLE OF INVENTION: TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER SEQUENCES

APPLICANT: MASCARENHAS, Desmond

APPLICANT: Zhang, Yang

APPLICANT: Olson, Pamela S.

APPLICANT: OLSEN, DAVID R.

APPLICANT: Cohen, Pedro A.

TITLE OF INVENTION: EXPRESSION OF FUSION POLYPEPTIDES

TITLE OF INVENTION: TRANSPORTED OUT OF THE CYTOPLASM WITHOUT LEADER

NUMBER OF SEQUENCES: 49

CORRESPONDENCE ADDRESS:

ADDRESSEE: MORRISON & FOERSTER

STREET: 755 PAGE MILL ROAD

CITY: Palo Alto

STATE: CA

COUNTRY: USA

ZIP: 94304-1018

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette

COMPUTER: IBM compatible

OPERATING SYSTEM: Windows

SOFTWARE: FastSeq for Windows Version 2.0b

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/854,811

FILING DATE: 12-MAY-1997

CLASSIFICATION: 435

PRIOR APPLICATION DATA:

APPLICATION NUMBER: 08/284,784

FILING DATE: 02-AUG-1994

APPLICATION NUMBER: 08/100,744

FILING DATE: 02-AUG-1993

ATTORNEY/AGENT INFORMATION:

NAME: Buflinger, Nicholas S

REGISTRATION NUMBER: 39,124

REFERENCE/DOCKET NUMBER: 22095-20275.21

TELECOMMUNICATION INFORMATION:

TELEPHONE: 650-813-5600

TELEFAX: 650-494-0792

TELEX: 706141

INFORMATION FOR SEO ID NO: 4:

SEQUENCE CHARACTERISTICS:

LENGTH: 132 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

US-08-854-811-4

Query Match

Best Local Similarity 100.0%; Score 467; DB 2; Length 132;

Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKIQLQAERGVSIGVCANRYLAMKEDGRLASKCVTD 60

Db 17 FLRIHPDGRVDGVRKSDPHIKIQLQAERGVSIGVCANRYLAMKEDGRLASKCVTD 76

OY 61 ECTFFERLESNNYNTYRSKRYTSWYVAL 88

Db 77 ECTFFERLESNNYNTYRSKRYTSWYVAL 104

RESULT 4

PCT-US90-06962-1

; Sequence 1, Application PC/TUS9006962
; GENERAL INFORMATION:

APPLICANT: Baird, J. A.

APPLICANT: Hajjar, David P.

TITLE OF INVENTION: Treatment of HSV

NUMBER OF SEQUENCES: 2

CORRESPONDENCE ADDRESS:

ADDRESSEE: Fitch, Even, Tabin & Flannery

STREET: 135 South Lasalle Street, Suite 900

CITY: Chicago

STATE: Illinois

COUNTRY: USA
ZIP: 60603
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.24
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US90/06962
FILING DATE: 19901129
CLASSIFICATION: Au 186/C1 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/443,939
FILING DATE: 30-NOV-1989
ATTORNEY/AGENT INFORMATION:
NAME: Schumann, James J.
REGISTRATION NUMBER: 20856
REFERENCE/DOCKET NUMBER: 50742
TELECOMMUNICATION INFORMATION:
TELEPHONE: (619)552-1311
TELEFAX: (619)552-0095
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 157 amino acids
TYPE: AMINO ACID
TOPOLOGY: linear
MOLECULE TYPE: protein
PCT-US90-06962-1

Query Match
Best Local Similarity 100.0%; Score 467; DB 5; Length 140;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDGVRKSDPHIKLOAEERGVSIKVCANRYLAMKEDGRLLASKCVTD 60
DB 42 FLRIHPDGRVDGVRKSDPHIKLOAEERGVSIKVCANRYLAMKEDGRLLASKCVTD 101

QY 61 ECFEERLESNNNTYRSRKYTSWYAL 88
DB 102 ECFEERLESNNNTYRSRKYTSWYAL 129

RESULT 5
US-08-231-894A-11
Sequence 11, Application US/08231894A
Patent No. 5851990
GENERAL INFORMATION:
APPLICANT: FUJISHIMA, AKIRA
APPLICANT: FUKUDA, TSUNEHICO
TITLE OF INVENTION: BFGF MUTEIN AND ITS PRODUCTION
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: DAVID G. CONLIN; DIKE, BRONSTEIN, ROBERTS
ADDRESSEE: 4 CUSHMAN
STREET: 130 WATER STREET
CITY: BOSTON
STATE: MASSACHUSETTS
COUNTRY: US
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSeq Version 1.5
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/231,894A
FILING DATE: 22-APR-1994
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/873907
FILING DATE: 24-APR-1992
CLASSIFICATION: 435

PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 097655-1991
FILING DATE: 26-APR-1991
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 066381-1992
FILING DATE: 24-MAR-1992
ATTORNEY/AGENT INFORMATION:
NAME: RESNICK, DAVID S.
REGISTRATION NUMBER: 34235
REFERENCE/DOCKET NUMBER: 41769-FWC
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 523-3400
TELEFAX: (617) 523-6440
INFORMATION FOR SEQ ID NO: 11:
SEQUENCE CHARACTERISTICS:
LENGTH: 146 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: peptide
HYPOTHETICAL: NO
ANTI-SENSE: NO
FRAGMENT TYPE: Internal
ORIGINAL SOURCE:
US-08-231-894A-11

Query Match
Best Local Similarity 100.0%; Score 467; DB 2; Length 146;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDGVRKSDPHIKLOAEERGVSIKVCANRYLAMKEDGRLLASKCVTD 60
DB 31 FLRIHPDGRVDGVRKSDPHIKLOAEERGVSIKVCANRYLAMKEDGRLLASKCVTD 90

QY 61 ECFEERLESNNNTYRSRKYTSWYAL 88
DB 91 ECFEERLESNNNTYRSRKYTSWYAL 118

RESULT 6
5464943-6
Patent No. 5464943
APPLICANT: SENOO, MASAHARU; SASADA, REIKO; IGARASHI, KOICHI
TITLE OF INVENTION: DNA ENCODING GLYCOSYLATED EGF AND
PRODUCTION THEREOF
NUMBER OF SEQUENCES: 42
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/275,635
FILING DATE: 15-JUL-1994
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 7,089
FILING DATE: 19-JAN-1993
APPLICATION NUMBER: 511,469
FILING DATE: 20-APR-1990
SEQ ID NO: 6
LENGTH: 146
5464943-6

Query Match
Best Local Similarity 100.0%; Score 467; DB 6; Length 146;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDGVRKSDPHIKLOAEERGVSIKVCANRYLAMKEDGRLLASKCVTD 60
DB 31 FLRIHPDGRVDGVRKSDPHIKLOAEERGVSIKVCANRYLAMKEDGRLLASKCVTD 90

QY 61 ECFEERLESNNNTYRSRKYTSWYAL 88
DB 91 ECFEERLESNNNTYRSRKYTSWYAL 118

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RESULT 7
5464943-8
; Patent NO. 5464943
; APPLICANT: SENOO, MASAHARU; SASADA, REIKO; IGARASHI, KOICHI
; TITLE OF INVENTION: DNA ENCODING GLYCOSYLATED FGF AND
; PRODUCTION THEREOF
; NUMBER OF SEQUENCES: 42
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/275,635
; FILING DATE: 15-JUL-1994
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: 7,089
; FILING DATE: 19-JAN-1993
; APPLICATION NUMBER: 511,469
; FILING DATE: 20-APR-1990
; SEQ ID NO: 8
; LENGTH: 146
5464943-8

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[illegible]

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RESULT      8
5175147-6
: Patent No. 5175147
: APPLICANT: FOLKMAN, MOSES J.; KATO, KOICHI
: TITLE OF INVENTION: ACID-RESISTANT EGF COMPOSITION AND METHOD
: OF TREATING ULCERATING DISEASES OF THE GASTROINTESTINAL TRACT
: NUMBER OF SEQUENCES: 19
: CURRENT APPLICATION DATA:
: APPLICATION NUMBER: US/07/382,263
: FILING DATE: 20-JUL-1989
: PRIOR APPLICATION DATA:
: APPLICATION NUMBER: 234,966
: FILING DATE: 19-AUG-1988
: SEQ ID NO: 6:
: LENGTH: 147
: 5175147-6

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Query Match	100.08;	Score 467;	DB 6;	Length 147;
Best Local Similarity	100.08;	Pred. No. 1.4e-52;		
Matches	88;	Conservative	0;	Mismatches 0; Indels 0; Gaps 0;
QY	1	FLRIHPDGVGVREKSDPHIKQLQAEERGVVSIKGVCANRYLAKMEDGRLLASKCVD	60	
Db	32	FLRIHPDGVGVREKSDPHIKQLQAEERGVVSIKGVCANRYLAKMEDGRLLASKCVD	91	
QY	61	ECFFFERLESNNYNTYRSRKYTSWYAL	88	
Db	92	ECFFFERLESNNYNTYRSRKYTSWYAL	119	

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RESULT      9
US-08-441-629-8
; Sequence 8, Application US/08441629
; Patent No. 5766923
;
GENERAL INFORMATION:
;
APPLICANT: Kirschner, Marc W.
;
TITLE OF INVENTION: Kinoshita, No. 5766923iyuk1
;
NUMBER OF SEQUENCES: RECEPTOR-LIGAND ASSAY
;                      17

```

CORRESPONDENCE ADDRESS:
ADDRESSEE: Hamilton, Brook, Smith & Reynolds, P.C.
STREET: Two Militia Drive
CITY: Lexington
STATE: Massachusetts
COUNTRY: USA
ZIP: 02173
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/441,629
FILING DATE: 15-MAY-1995
CLASSIFICATION: 435
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 08/279,217
FILING DATE: 22-JUL-1994
ATTORNEY/AGENT INFORMATION:
NAME: Granahan, Patricia
REGISTRATION NUMBER: 32,227
REFERENCE/DOCKET NUMBER: HU95-01A
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 861-6240
TELEFAX: (617) 861-9540
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
LENGTH: 150 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-441-629-8

	Query Match	100.0%;	Score 467;	DB 1;	Length 150;	
	Best Local Similarity	100.0%;	Pred. No. 1.4e-52;			
	Matches	88;	Conservative	0;	Mismatches	0;
					Indels	0;
					Gaps	0;
Qy	1 FLRIHPDGVDSVRESDPHIKLQLQAEEGVVSIRKVCANRYLAMKEDGRLLASKCVTD	60				
Db	40 FLRIHPDGVDSVRESDPHIKLQLQAEEGVVSIRKVCANRYLAMKEDGRLLASKCVTD	99				
Qy	61 ECFEERLESNNNNYRSRKYTSWYVAL	88				
Db	100 ECFEERLESNNNNYRSRKYTSWYVAL	127				

RESULT 10
US-08-776-207-8
Sequence 8, Application US/08776207A
Patent No. 6080718
GENERAL INFORMATION:
APPLICANT: Kirschner, Marc W.
APPLICANT: Kinoshita, No. 6080718iyuki
TITLE OF INVENTION: Receptor-Ligand Assay
FILE REFERENCE: HU95-01A2
CURRENT APPLICATION NUMBER: US/08/776, 207A
CURRENT FILING DATE: 1997-06-23
EARLIER APPLICATION NUMBER: PCT/US95/09172
EARLIER FILING DATE: 1995-07-19
EARLIER APPLICATION NUMBER: 08/441, 629
EARLIER FILING DATE: 1995-05-15
EARLIER APPLICATION NUMBER: 08/279, 217
EARLIER FILING DATE: 1994-07-22
NUMBER OF SEQ ID NOS: 18
SOFTWARE: FastSeq for Windows Version 3.0
SEQ ID NO 8
LENGTH: 150
TYPE: PRT
ORGANISM: Homo sapien
US-08-776-207-8

Query Match 100.0%; Score 467; DB 3; Length 150;
Best Local Similarity 100.0%; Pred. No. 1.4e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSIGVCANRYLAMKEDGRLASKCYTD 60
|||||
DB 40 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSIGVCANRYLAMKEDGRLASKCYTD 99
OY 61 ECEFFERLESNNYNTYRSRKYTSWYVAL 88
|||||
DB 100 ECEFFERLESNNYNTYRSRKYTSWYVAL 127

RESULT 11

PCT-US95-09172-8

; Sequence 8, Application PC/TUS9509172

; GENERAL INFORMATION:

; APPLICANT: Kirschner, Marc W.

; TITLE OF INVENTION: RECEPTOR-LIGAND ASSAY

; NUMBER OF SEQUENCES: 17

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Hamilton, Brook, Smith & Reynolds, P.C.

; STREET: Two Militia Drive

; CITY: Lexington

; STATE: Massachusetts

; COUNTRY: USA

; ZIP: 02173

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: PatentIn Release #1.0, Version #1.30

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: PCT/US95/09172

; FILING DATE:

; CLASSIFICATION:

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 08/279,217

; FILING DATE: 22-JUL-1994

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 08/441,629

; FILING DATE: 15-MAY-1995

; ATTORNEY/AGENT INFORMATION:

; NAME: Granahan, Patricia

; REGISTRATION NUMBER: 32,227

; REFERENCE/DOCKET NUMBER: H095-01A PCT

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: (617) 861-6240

; TELEFAX: (617) 861-9540

; INFORMATION FOR SEQ ID NO: 8:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 150 amino acids

; TYPE: amino acid

; STRANDEDNESS: single

; TOPOLOGY: linear

; MOLECULE TYPE: protein

; PCT-US95-09172-8

Query Match 100.0%; Score 467; DB 5; Length 150;
Best Local Similarity 100.0%; Pred. No. 1.4e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSIGVCANRYLAMKEDGRLASKCYTD 60
|||||
DB 40 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSIGVCANRYLAMKEDGRLASKCYTD 99
OY 61 ECEFFERLESNNYNTYRSRKYTSWYVAL 88
|||||
DB 100 ECEFFERLESNNYNTYRSRKYTSWYVAL 127

RESULT 12
US-08-325-186-2
; Sequence 2, Application US/08325186

; Patent No. 6046164

; GENERAL INFORMATION:

; APPLICANT: ASANO, Taiji

; APPLICANT: SUGIMOTO, Hajime

; APPLICANT: TERASHIMA, Akio

; APPLICANT: NAKANO, Yoshiko

; APPLICANT: AMAKAWA, Masahiro

; APPLICANT: SAGA, Katumasa

; TITLE OF INVENTION: THERAPEUTIC AGENT FOR DISEASES OF PERIODONTAL

; NUMBER OF SEQUENCES: 2

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Armstrong, Westernman, Hattori, Mclelland &

; STREET: 1725 K St. N.W. Suite 1000

; CITY: Washington

; STATE: D.C.

; COUNTRY: U.S.A.

; ZIP: 20006

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Diskette, 3.5 in, 1.44MB

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0

; SOFTWARE: ASCII

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/325,186

; FILING DATE: 24-MAY-95

; CLASSIFICATION: 514

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: PCT/JP93/01211

; FILING DATE: 25-AUG-1993

; ATTORNEY/AGENT INFORMATION:

; NAME: Stevens-Smith, Theresa M.

; REGISTRATION NUMBER: 36,281

; REFERENCE/DOCKET NUMBER: 950319

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: (202) 659-2930

; TELEFAX: (202) 887-0357

; TELEX: 440142

; INFORMATION FOR SEQ ID NO: 2:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 153

; TYPE: amino acid

; TOPOLOGY: linear

; MOLECULE TYPE: protein

; US-08-325-186-2

Query Match 100.0%; Score 467; DB 3; Length 153;
Best Local Similarity 100.0%; Pred. No. 1.4e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSIGVCANRYLAMKEDGRLASKCYTD 60
|||||
DB 38 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSIGVCANRYLAMKEDGRLASKCYTD 97
OY 61 ECEFFERLESNNYNTYRSRKYTSWYVAL 88
|||||
DB 98 ECEFFERLESNNYNTYRSRKYTSWYVAL 125

RESULT 13

US-08-438-439C-24

; Sequence 24, Application US/08438439C

; Patent No. 5876967

; GENERAL INFORMATION:

; APPLICANT: Nathans, Jeremy

; APPLICANT: Smallwood, Phillip M.

APPLICANT: Macke, Jennifer P.
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS
TITLE OF INVENTION: FACTOR-2 AND METHODS OF USE
NUMBER OF SEQUENCES: 25
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 4225 Executive Square, Suite 1400
CITY: La Jolla
STATE: CA
COUNTRY: USA
ZIP: 92037
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/438,439C
FILING DATE: May 12, 1995
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Haile, Lisa A.
REGISTRATION NUMBER: 38,347
REFERENCE/DOCKET NUMBER: 07265/046001
TELECOMMUNICATION INFORMATION:
TELEPHONE: 619/678-5070
TELEFAX: 619/678-5099
INFORMATION FOR SEQ ID NO: 24:
SEQUENCE CHARACTERISTICS:
LENGTH: 154 amino acids
TYPE: amino acid
STRANDEDNESS: not relevant
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-438-439C-24

Query Match 100.0%; Score 467; DB 2; Length 154;
Best Local Similarity 100.0%; Pred. No. 1.5e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVREKSDPHIKLQIAEERGVSIGVCANRYLAMKEDGRLASKCYTD 60
|||||
DB 39 FLRIHPDGRVDGVREKSDPHIKLQIAEERGVSIGVCANRYLAMKEDGRLASKCYTD 98
|||||

OY 61 ECFEERLESNNYNTYRSRKYTSWYAL 88
|||||
DB 99 ECFEERLESNNYNTYRSRKYTSWYAL 126
|||||

RESULT 14
US-08-325-186-1
Sequence 1, Application US/08325186
Patent No. 6046164
GENERAL INFORMATION:
APPLICANT: ASANO, Taiji
APPLICANT: SUGIMOTO, Hajime
APPLICANT: TERASHIMA, Akio
APPLICANT: NAKAWA, Yoshiko
APPLICANT: AMAKAWA, Masahiro
APPLICANT: SAGA, Katumasa
TITLE OF INVENTION: THERAPEUTIC AGENT FOR DISEASES OF PERIODONTAL
TITLE OF INVENTION: TISSUE
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
ADDRESSEE: Armstrong, Westerman, Hattori, Mclelland &
ADDRESSEE: Naughton
STREET: 1725 K St. N.W. Suite 1000
CITY: Washington
STATE: D.C.
COUNTRY: U.S.A.
ZIP: 20006
COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 3.5 in, 1.44MB
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS, Version 5.0
SOFTWARE: ASCII
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/325,186
FILING DATE: 24-MAY-95
CLASSIFICATION: 514
PRIOR APPLICATION DATA:
APPLICATION NUMBER: PCT/JP93/01211
FILING DATE: 25-AUG-1993
ATTORNEY/AGENT INFORMATION:
NAME: Stevens-Smith, Theresa M.
REGISTRATION NUMBER: 36,281
REFERENCE/DOCKET NUMBER: 950319
TELECOMMUNICATION INFORMATION:
TELEPHONE: (202) 659-2930
TELEFAX: (202) 887-0357
TELEX: 440142
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 154
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-325-186-1

Query Match 100.0%; Score 467; DB 3; Length 154;
Best Local Similarity 100.0%; Pred. No. 1.5e-52;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVREKSDPHIKLQIAEERGVSIGVCANRYLAMKEDGRLASKCYTD 60
|||||
DB 39 FLRIHPDGRVDGVREKSDPHIKLQIAEERGVSIGVCANRYLAMKEDGRLASKCYTD 98
|||||

OY 61 ECFEERLESNNYNTYRSRKYTSWYAL 88
|||||
DB 99 ECFEERLESNNYNTYRSRKYTSWYAL 126
|||||

RESULT 15
PCT-US91-02186-6
Sequence 6, Application PC/TUS9102186
GENERAL INFORMATION:
APPLICANT: California Biotechnology Inc.
APPLICANT: Inventors: Thompson, Stewart A.
APPLICANT: Abraham, Judith A.
TITLE OF INVENTION: High Level Expression of Basic
TITLE OF INVENTION: Fibroblast Growth Factor Having a Homogeneous
TITLE OF INVENTION: N-terminus
NUMBER OF SEQUENCES: 26
CORRESPONDENCE ADDRESS:
ADDRESSEE: Irell & Manella
STREET: 545 Middlefield Road, Suite 200
CITY: Menlo Park
STATE: California
COUNTRY: USA
ZIP: 94025-3471
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.25
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US91/02186
FILING DATE: 19910702
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Murashige, Kate H.
REGISTRATION NUMBER: 29,959
REFERENCE/DOCKET NUMBER: 1900-0275.41
TELECOMMUNICATION INFORMATION:

TELEPHONE: 415-327-7250
 ; INFORMATION FOR SEQ ID NO: 6:
 ; SEQUENCE CHARACTERISTICS:
 ; LENGTH: 154 amino acids
 ; TYPE: AMINO ACID
 ; TOPOLOGY: linear
 ; MOLECULE TYPE: protein
 PCT-us91-02186-6

Query Match 100.0%; Score 467; DB 5; Length 154;
 Best Local Similarity 100.0%; Pred. No. 1.5e-52;
 Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY	1	FLRIHPDGRVDGVREKSDPHIKIQIAEERGVSISKVCANRYLAKEDGRLLASKCVTD	60
Db	39	FLRIHPDGRVDGVREKSDPHIKIQIAEERGVSISKVCANRYLAKEDGRLLASKCVTD	98
QY	61	ECFFERLESNNNTYRSRKYTSNYAL	88
Db	99	ECFFERLESNNNTYRSRKYTSNYAL	126

Search completed: June 2, 2002, 18:01:37
 Job time: 455 sec

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: June 2, 2002, 18:03:40 ; Search time 73.59 Seconds

(without alignments)
132.824 Million cell updates/sec

Title: US-09-642-277A-3

Perfect score: 467
Sequence: 1. FLRIHPDGRVDGVREKSDPH.....ESNNYNTYRSRKYSWYVAL 88

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database: A_Geneseq_032802:*

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2: /SIDS1/gcgdata/hold-geneseq/geneseq-emb1/AA1981.DAT:*
3: /SIDS1/gcgdata/hold-geneseq/geneseq-emb1/AA1982.DAT:*
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19: /SIDS1/gcgdata/hold-geneseq/geneseq-emb1/AA1998.DAT:*
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21: /SIDS1/gcgdata/hold-geneseq/geneseq-emb1/AA2000.DAT:*
22: /SIDS1/gcgdata/hold-geneseq/geneseq-emb1/AA2001.DAT:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	467	100.0	88	22	AAB60697 Human basic fibrob
2	467	100.0	123	10	AAP90561 rhbFGF muteln C123
3	467	100.0	129	9	AAP81940 Human basic fibrob
4	467	100.0	129	10	AAP90562 rhbFGF muteln C129
5	467	100.0	132	20	AAV17995 Human basic fibrob
6	467	100.0	134	9	AAP81932 Human basic fibrob
7	467	100.0	138	10	AAP90563 rhbFGF muteln C137
8	467	100.0	139	9	AAP81937 Human basic fibrob
9	467	100.0	146	9	AAP82579 Human basic fibrob
10	467	100.0	146	13	AAR25423 bFGF derivative.
11	467	100.0	146	14	AAR34494 Human basic fibrob

12	467	100.0	146	15	AAR65925 Fibroblast growth
13	467	100.0	146	15	AAR65926 Fibroblast growth
14	467	100.0	146	21	AAV87847 Human FGF-2 protel
15	467	100.0	146	22	AAE11974 Human fibroblast g
16	467	100.0	146	22	AAG62612 Human basic insul
17	467	100.0	147	9	AAP81916 Human basic fibrob
18	467	100.0	147	9	AAP81931 Human basic fibrob
19	467	100.0	148	13	AAR22233 bFGF truncated at
20	467	100.0	149	11	AAR03960 Basic fibroblast g
21	467	100.0	153	16	AAR71414 Human basic fibrob
22	467	100.0	154	16	AAR71413 Human basic fibrob
23	467	100.0	154	17	AAR89473 Sequence of human
24	467	100.0	155	8	AAP70301 Human basic fibrob
25	467	100.0	155	10	AAP94038 Human basic fibrob
26	467	100.0	155	11	AAR05314 Basic fibroblast g
27	467	100.0	155	11	AAR03965 Glu 3,5 basic fibr
28	467	100.0	155	13	AAR23960 bFGF truncated at
29	467	100.0	155	13	AAR22232 Human bFGF peptide
30	467	100.0	155	14	AAR40159 Human bFGF peptide
31	467	100.0	155	14	AAR40161 Human bFGF peptide
32	467	100.0	155	15	AAR53270 Fibroblast growth
33	467	100.0	155	16	AAR70204 Human bFGF. Homo
34	467	100.0	155	16	AAR70823 FGF-2. Homo sapie
35	467	100.0	155	16	AAW33338 Biologically activ
36	467	100.0	155	18	AAW19595 Fibronectin recept
37	467	100.0	155	18	AAW05456 Fibroblast growth
38	467	100.0	155	19	AAW75712 K134T mutant of fl
39	467	100.0	155	19	AAW71403 K144V mutant of fl
40	467	100.0	155	19	AAW71404 M151R mutant of fl
41	467	100.0	155	19	AAW71405 S152V/S152W mutant
42	467	100.0	155	19	AAW71406 Y33A/Y33L mutant o
43	467	100.0	155	19	AAW71387 K128D/K128P mutant
44	467	100.0	155	19	
45	467	100.0	155	19	

ALIGNMENTS

RESULT 1	
AAB60697	standard; protein; 88 AA.
XX	
AC	AAB60697;
XX	
DT	22-MAY-2001 (first entry)
XX	
DE	Human basic fibroblast growth factor (bFGF) 88 residue form, SEQ ID NO:3.
XX	
KW	Human bFGF; basic fibroblast growth factor; 88 residue form;
KW	central nervous system; CNS damage; brain damage; neural stimulant;
KW	stem cell; conjoint administration; therapy; recovery;
KW	ischemia; hypoxia; trauma; neurodegenerative disorder;
KW	infectious disease; cancer; autoimmune disease; metabolic disorder;
KW	stroke; encephalomyelitis; Alzheimer's disease; Huntington's disease;
KW	Parkinson's disease; Creutzfeldt-Jakob disease; multiple sclerosis;
KW	amyotrophic lateral sclerosis.
XX	
OS	Homo sapiens.
XX	
PN	WO200112236-A2.
XX	
PD	22-FEB-2001.
XX	
PF	18-AUG-2000; 2000WO-US22843.
XX	
PR	18-AUG-1999; 99US-0149561.
XX	
PA	(GEHO) GEN HOSPITAL CORP.
XX	
PI	Finklestein SP, Snyder EY;
XX	
DR	WPI; 2001-211142/21.

XX Treating central nervous system damage and brain damage resulting from
PT stroke, involves administering cells or stem cells and a neural
PT stimulant -
XX
PS Claim 14; Fig 4; 56pp; English.

CC The invention relates to a method of treating an individual with
CC central nervous system (CNS) damage, particularly brain damage resulting
CC from stroke. The method involves the administration a neural stimulant
CC such as a polypeptide growth factor, and stem cells (e.g., neural stem
CC cells, haematopoietic stem cells, teratocarcinoma-derived cells or
CC embryonic stem cells) capable of giving rise to brain cells such as
CC neurons, oligodendroglia, astroglia or microglia. The conjoint
CC administration of the stem cells and the neural stimulant promotes
CC greater recovery from CNS damage than either treatment alone, and
CC provides a greater degree of recovery than is currently available with
CC other known treatment methods. From a study of the effectiveness of the
CC conjoint administration of foetal mouse neural stem cells with or
CC without basic fibroblast growth factor (bFGF) in a rat model of stroke,
CC it was found that the treatment's recovery-promoting effects are
CC probably produced through mechanisms other than the prevention of cell
CC death. The method is useful for treating injury to the brain and spinal
CC cord due to ischaemia, hypoxia, trauma, neurodegenerative disorders
CC infectious diseases, cancer, autoimmune disease and metabolic disorders.
CC Examples of such disorders include stroke, hypotension, arrested
CC breathing, cardiac arrest, brain tumours, brain injury,
CC encephalomyelitis, Alzheimer's disease, Huntington's disease, Parkinson's
CC disease, Creutzfeldt-Jakob disease, multiple sclerosis, and amyotrophic
CC lateral sclerosis. The present sequence represents a 88 residue form of
CC human bFGF which is specifically claimed for use in the method of the
CC invention.
XX
SQ Sequence 88 AA;

Query Match 100.0%; Score 467; DB 22; Length 88;
Best Local Similarity 100.0%; Pred. No. 1.3e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDGVRKSDPHIKILOAEERGVSVIKVCANRYLAMKEDGRLASKCYTD 60
|||
DB 1 flrhpdgrrvdgvrksgdphikilqlaeeergvsvikvcanrylamkedgrrlaskcvtd 60

QY 61 ECFPERLESNNYNTYRSRKYTSWYVAL 88
|||
DB 61 ecffferlesnnyntyrskrkytswyval 88

RESULT 2

AAP90561
ID AAP90561 standard; peptide; 123 AA.

XX AAP90561;

DT 26-OCT-1989 (first entry)

DE rhbFGF mutein C123.

KW Basic fibroblast growth factor; mutein C123.

PN EP326907-A.

PD 09-AUG-1989.

PF 24-JAN-1989; 89EP-0101162.

PR 26-JAN-1988; 88JP-0016260.

PR 19-AUG-1988; 88JP-0206968.

PR 20-SEP-1988; 88JP-0235842.

(TAKE) TAKEDA CHEMICAL INDUSTRIES LTD.

PI Senoo M, Sasada R, Kurokawa T, Igarashi K;
XX WPI; 1989-228965/32.

PT Muteins of basic fibroblast growth factor - lacking carboxy terminal
PT amino acids; having growth promoting and angiogenic activities.
XX
PS Disclosure; Fig. 7; 41pp; english.

CC rhbFGF mutein C123 (encoded by AAN90405) lacks 24 C-terminal amino acids
CC of basic fibroblast growth factor. It has high fibroblast growth
CC promoting, vasoendothelial cell growth promoting, and angiogenic
CC activities, and has high stability and low toxicity. It is used to
CC accelerate healing of, eg burns, wounds and postoperative tissues, as a
CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate
CC cell cultivation.
XX
SQ Sequence 123 AA;

Query Match 100.0%; Score 467; DB 10; Length 123;
Best Local Similarity 100.0%; Pred. No. 2e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 FLRIHPDGRVDGVRKSDPHIKILOAEERGVSVIKVCANRYLAMKEDGRLASKCYTD 60
|||
DB 32 flrhpdgrrvdgvrksgdphikilqlaeeergvsvikvcanrylamkedgrrlaskcvtd 91

QY 61 ECFPERLESNNYNTYRSRKYTSWYVAL 88
|||
DB 92 ecffferlesnnyntyrskrkytswyval 119

RESULT 3

AAP81940
ID AAP81940 standard; protein; 129 AA.

XX AAP81940;

DT 26-OCT-1990 (first entry)

DE Human basic fibroblast growth factor mutein C129 from plasmid PTB856.

KW Human basic fibroblast growth factor; human bFGF mutein F1NT;
KW growth promoting activity; growth stimulating activity; plasmid PTB856;
KW capillary endothelial cells; angiogenic activity.
XX
OS Synthetic.

XX Key

FT Misc-difference 129..129
FT Location/Qualifiers
FT /label-mutation_to_stopcodon

PN EP281822-A.

PD 14-SEP-1988.

PF 20-FEB-1988; 88EP-0102491.

PR 24-FEB-1987; 87JP-0042218.

PA (TAKE) TAKEDA CHEMICAL IND KK.

PI Senoo M, Krokawa T, Igarashi K, Sasada R;

DR WPI; 1988-258580/37.

DR N-PSDB; AAN81997.

PT Mutein of basic fibroblast growth factor -
PT having fibroblast growth promoting activity, growth stimulating
PT activity of capillary endothelial cells and angiogenic activity.
XX
PS Disclosure; 1pp; English.

XX Using plasmid pTB856, E.coli KM294 was transformed, whereby the
CC strain E.coli KM294/pTB856 was obtained, which harbors the plasmid
CC pTB856 expressing the mutetin represented here. The amino acid
CC sequence from Lys130 to Ser147 has been deleted.
CC The mutetin has high stability and is low in toxicity.
CC It can be used as a healing accelerator for e.g. burns, wounds
CC or postoperative tissues or as a therapeutic drug based on its
CC angiogenic action for e.g. thrombosis or arteriosclerosis. It can also
CC be used as a reagent for acceleration of cell cultivation. A mutetin
CC where at least one constituent cysteine is replaced by serine is
CC preferred because the mutetin is highly stable and intermolecular bridges
CC and linkages are reduced or eliminated.
CC See also AAN81971-97.
CC
XX
SQ Sequence 129 AA;

Query Match 100.0%; Score 467; DB 9; Length 129;
Best Local Similarity 100.0%; Pred. No. 2.1e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKESDPHIKIQLOAERGVSVIKGVCANRYLAMKEDGRLLASKCVTD 60
|||
DB 32 flrlhpdgrydgvreksdpkhlqlqaeergvsvikgvcanrylamkedgrllaskcvtd 91
|||
OY 61 ECFEERLESNNYNTYRSRKYTSWYVAL 88
|||
DB 92 ecffferlesnnyntyrskytswyval 119

RESULT 4
AAP90562
ID AAP90562 standard; peptide; 129 AA.
XX
AC AAP90562;
XX
DT 26-OCT-1989 (first entry)
XX
DE rhbFGF mutetin C129.
XX
KM Basic fibroblast growth factor; mutetin C129.
XX
PN EP326907-A.
XX
PD 09-AUG-1989.
XX
PF 24-JAN-1989; 89EP-0101162.
XX
PR 26-JAN-1988; 88JP-0016260.
PR 19-AUG-1988; 88JP-0206968.
PR 20-SEP-1988; 88JP-0235842.
XX
PA (TAKE) TAKEDA CHEMICAL INDUSTRIES LTD.
XX
PI Senoo M, Sasada R, Kurokawa T, Igarashi K;
XX
DR WPI; 1989-228965/32.
XX
PT Mutetins of basic fibroblast growth factor - lacking carboxy terminal
PT amino acids, having growth promoting and angiogenic activities.
XX
PS Disclosure; claim 8, page 22; Fig. 8; 41pp; english.
XX
CC rhbFGF mutetin C129 (encoded by AAN90406) lacks 18 C-terminal amino acids
CC of basic fibroblast growth factor. It has high fibroblast growth
CC promoting, vasoendothelial cell growth promoting, and angiogenic
CC activities, and has high stability and low toxicity. It is used to
CC accelerate healing of, eg burns, wounds and postoperative tissues, as a
CC drug for thrombosis or arteriosclerosis, or as a reagent to accelerate
CC cell cultivation. Cys 70 and Cys 88 may be replaced by Ser (see
CC AAP90564).
XX

SQ Sequence 129 AA;

Query Match 100.0%; Score 467; DB 10; Length 129;
Best Local Similarity 100.0%; Pred. No. 2.1e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKESDPHIKIQLOAERGVSVIKGVCANRYLAMKEDGRLLASKCVTD 60
|||
DB 32 flrlhpdgrydgvreksdpkhlqlqaeergvsvikgvcanrylamkedgrllaskcvtd 91
|||
OY 61 ECFEERLESNNYNTYRSRKYTSWYVAL 88
|||
DB 92 ecffferlesnnyntyrskytswyval 119

RESULT 5
AAV17995
ID AAV17995 standard; protein; 132 AA.
XX
AC AAV17995;
XX
DT 16-AUG-1999 (first entry)
XX
DE Human basic fibroblast growth factor (FGF).
XX
KW Fusion protein; leader peptide; fermentation; interleukin-1; IL-1;
KW leaderless fusion protein; fibroblast growth factor; FGF.
XX
OS Homo sapiens.
XX
PN US5914254-A.
XX
PD 22-JUN-1999.
XX
PF 12-MAY-1997; 97US-0854811.
XX
PR 12-MAY-1997; 97US-0854811.
PR 02-AUG-1993; 93US-0100744.
PR 02-AUG-1994; 94US-0284784.
XX
PA (CELFT-) CELFTRIX PHARM INC.
XX
PI Cohen PA, Mascarenhas D, Nguyen KB, Olsen DR, Olson PS;
PI Zhang Y;
XX
DR WPI; 1999-370500/31.
XX
PT Recombinant production of fusion proteins
XX
PS Example 2; Fig 1; 80pp; English.
XX

The invention relates to recombinant production of fusion proteins using
CC fusion partners that lack leader sequences. The nucleic acids, vectors,
CC host cells and methods disclosed may be used to recombinantly produce
CC large quantities of fusion proteins, in which the fusion partner lacks a
CC leader sequence, via fermentation culture according to standard
CC recombinant DNA methodologies. The polypeptide of interest is cleaved
CC away from the rest of the fusion protein by proteolytic digestion. A
CC variety of polypeptides may be produced in this manner including
CC enzymes, growth factors, single chain antibodies DNA-/RNA- binding
CC proteins, membrane receptors, mutant IGFBP-3s and fragments of them.
CC Additionally, the invention may be used in the screening of libraries of
CC random polypeptides by assays for their biological function. When fused
CC to an interleukin-1-like (IL-1-like) polypeptide, the random peptides
CC accumulate in a protected cellular compartment in a soluble active form.
CC leaderless fusion proteins may be produced in a wide variety of host
CC cells (e.g. Escherichia coli), in a soluble, active and easily
CC recoverable form at temperature at or close to the physiological optima
CC for host cell growth. A wide variety of polypeptides, including those
CC that are otherwise unstable, or insoluble may be expressed as fusions
CC with the IL-1-like polypeptides or other leader deleted translocating
CC peptides. Sequences AAV17992-996 represent five members of the IL-1-like

RESULT 8
AAP81937
ID AAP81937 standard; protein; 139 AA.
XX
AC AAP81937;
XX
DT 26-OCT-1990 (first entry)
XX
DE Human basic fibroblast growth factor mutetin N10 from plasmid PTB852.
XX
KW Human basic fibroblast growth factor; human bFGF mutetin N10;
KW growth promoting activity; growth stimulating activity; plasmid PTB852;
KW capillary endothelial cells; angiogenic activity.
XX
OS Synthetic.
XX
FB Key
FT Misc-difference 1.1
FT /label-mutation_from_Ser_to_Met
XX
PN EP281822-A.
XX
PD 14-SEP-1988.
XX
PE 20-FEB-1988; 88EP-0102491.
XX
PR 24-FEB-1987; 87JP-0042218.
XX
PA (TAKE) TAKEDA CHEMICAL IND KK.
XX
PI Senoo M, Krokawa T, Igarashi K, Sasada R;
XX
DR WPI; 1988-258580/37.
DR N-PDBS; N81994.
XX
PT Mutetin of basic fibroblast growth factor -
PT having fibroblast growth promoting activity, growth stimulating
PT activity of capillary endothelial cells and angiogenic activity.
XX
PS Disclosure; ; 1pp; English.
XX
CC Using plasmid PTB852, E.coli MM294 was transformed, whereby the
CC strain E.coli MM294/pTB852 was obtained, which harbors the plasmid
CC PTB852 expressing the mutetin represented here.
CC The DNA of plasmid PTB854 was cleaved with EcoRI and NcoI to remove
CC the fragment encoding the 10 amino acid residues of N-terminus of
CC the human gFGF (Pro2-Ser10).
CC The mutetin has high stability and is low in toxicity.
CC It can be used as a healing accelerator for e.g. burns, wounds
CC or postoperative tissues or as a therapeutic drug based on its
CC angiogenic action for e.g. thrombosis or arteriosclerosis. It can also
CC be used as a reagent for acceleration of cell cultivation. A mutetin
CC where at least one constituent cysteine is replaced by serine is
CC preferred because the mutetin is highly stable and intermolecular bridges
CC and linkages are reduced or eliminated.
CC See also AAN81971-97.
XX
SQ Sequence 139 AA;

Query Match 100.0%; Score 467; DB 9; Length 139;
Best Local Similarity 100.0%; Pred. No. 2.3e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSISIKVCANRYLAMKEDGRLASKCYTD 60
DB 24 flrlhpdgvrvgvrekspdhiklqlgaeeergvsvikgvcanylamkedgrllaskcytd 83
OY 61 ECGFFERLESNNYNTYRSKRYTSWYAL 88
DB 84 ecffferlesnnyntyrskrytswyval 111

RESULT 9
AAP82579
ID AAP82579 standard; protein; 146 AA.
XX
AC AAP82579;
XX
DT 02-NOV-1990 (first entry)
XX
DE Human basic fibroblast growth factor.
XX
KW Basic fibroblast growth factor; anticancer agent; bFGF.
KW Homo sapiens.
XX
OS Homo sapiens.
XX
PN EP288687-A.
XX
PD 02-NOV-1988.
XX
PE 01-MAR-1988; 88EP-0103047.
XX
PR 03-MAR-1987; 87JP-0049759.
PR 26-AUG-1987; 87JP-0211599.
PR 26-JAN-1988; 88JP-0016260.
XX
PA (TAKE) TAKEDA CHEMICAL IND KK.
XX
PI Iwane M, Kurokawa T, Igarashi K;
XX
DR WPI; 1988-308739/44.
DR N-PSDB; AAN82192.
XX
PT New monoclonal antibodies specific for basic fibroblast growth
PT factor - used in immunoassay, purification, and as anticancer agent.
XX
PS Disclosure; ; p; English.
XX
CC DNA encoding the protein was isolated from a cDNA library prepd.
CC from mRNA from human foreskin derived primary culture cell. It
CC can be used to produce recombinant hbFGF for prodn. of mAbs
CC specific for bFGF (do not cross react with acidic FGF). High
CC purity bFGF is also useful for promoting healing of burns and
CC wounds and, due to its neovascularising action, to treat thrombosis
CC and arteriosclerosis.
CC See also AAN82193 and AAN82194.
XX
SQ Sequence 146 AA;

Query Match 100.0%; Score 467; DB 9; Length 146;
Best Local Similarity 100.0%; Pred. No. 2.5e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLOLAERGVSISIKVCANRYLAMKEDGRLASKCYTD 60
DB 31 flrlhpdgvrvgvrekspdhiklqlgaeeergvsvikgvcanylamkedgrllaskcytd 90
OY 61 ECGFFERLESNNYNTYRSKRYTSWYAL 88
DB 91 ecffferlesnnyntyrskrytswyval 118

RESULT 10
AAR25423
ID AAR25423 standard; protein; 146 AA.
XX
AC AAR25423;
XX
DT 06-JAN-1993 (first entry)
XX
DE bFGF derivative.
XX

KW Human; basic fibroblast growth factor; recombinant; wound healing;
KW revascularise; regenerate; neural tissue;
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Modified-site 69
FT /note- "derivatised with an agent capable of forming
FT a covalent S-C bond with Cys"
FT Modified-site 89
FT /note- "derivatised with an agent capable of
FT forming a covalent S-C bond with Cys"
XX
PN EP494664-A.
XX
PD 15-JUL-1992.
XX
PF 09-JAN-1992; 92EP-0100257.
XX
PR 09-JAN-1991; 91GB-0000381.
XX
PA (FARM) FARMITALIA ERBA SRL CARLO.
XX
PI Bertolero F, Caccia P, Calet G, Nitti G;
XX
DR WPI; 1992-235730/29.
XX
PT Derived basic fibroblast growth factor - for treating ulcers,
PT regenerating damaged neural tissue, aiding tissue transplant or
PT bone graft and revascularising ischaemic tissue
XX
PS Claim 2; Page 3; 20pp; English.
XX
CC The sequence is that of a recombinant human basic fibroblast growth
CC factor which has at least on of the four cysteine residues (pref.
CC Cys 69 and Cys 87) derivatised with an agent able to form a covalent
CC S-C bond with Cys. Typical agents include iodoacetic acid,
CC haloacetamide, alkali tetrahydroates, alkyl methanethiosulphonates
CC and 1-6C alkylsulphonates. The derivatised bFGF is used to accelerate
CC the healing of wounds (including burns, ulcers, transplants, and
CC bone grafts), to revascularise ischaemic tissue or to regenerate
CC damaged neural tissue. Compared with native bFGF the recombinant
CC derivatised bFGF has better biological activity and stability (esp.
CC not aggregating by dimer formation) and is also easier to isolate.
XX
SQ Sequence 146 AA;

Query Match 100.0%; Score 467; DB 13; Length 146;
Best Local Similarity 100.0%; Pred. No. 2.5e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVREKSDPHIKLOAEERGVSIGVCANRYLAMKEDGRLASKCVTD 60
DB 31 flrlhpdgrrvdgvreksdphiklqlgaeergvsvikvcanylamkedgrllaskcvtd 90
OY 61 ECFPERLESNNYNTYRSRKYTSWYVAL 88
DB 91 ecffperlesnnynntyrskytswyval 118

RESULT 11
AAR34494
ID AAR34494 standard; protein; 146 AA.
XX
AC AAR34494;
XX
DT 06-AUG-1993 (first entry)
XX
DE Human basic fibroblast Growth Factor.
XX
KW bFGF; mutein; glycosylation site; glycoprotein.
XX

OS Homo sapiens.
XX
PN JP05076356-A.
XX
PD 30-MAR-1993.
XX
PF 30-MAY-1991; 91JP-0127435.
XX
PR 31-MAY-1990; 90JP-0143388.
XX
PA (TAKE) TAKEDA CHEM IND LTD.
XX
DR WPI; 1993-139564/17.
XX
PT FGF mutein prepn. useful for therapy of burn or thrombosis - by
PT transformation of lymphocyte-contained animal cell by vector
PT contg. DNA encoding FGF mutein
XX
PS Disclosure; Page 3; 23pp; Japanese.
XX
CC The invention covers muteins of FGF (esp. bFGF) which contain at
CC least one glycosylation site. The muteins can be used to treat burns
CC and thrombosis.
XX
SQ Sequence 146 AA;

Query Match 100.0%; Score 467; DB 14; Length 146;
Best Local Similarity 100.0%; Pred. No. 2.5e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVREKSDPHIKLOAEERGVSIGVCANRYLAMKEDGRLASKCVTD 60
DB 31 flrlhpdgrrvdgvreksdphiklqlgaeergvsvikvcanylamkedgrllaskcvtd 90
OY 61 ECFPERLESNNYNTYRSRKYTSWYVAL 88
DB 91 ecffperlesnnynntyrskytswyval 118

RESULT 12
AAR65925
ID AAR65925 standard; protein; 146 AA.
XX
AC AAR65925;
XX
DT 10-JUL-1995 (first entry)
XX
DE Fibroblast growth factor b (bFGF) mutein Asn7.
XX
KW Fibroblast growth factor basic; bFGF; glycosylation sites;
KW traumas; burns; thrombosis; arteriosclerosis.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Region 7.9
FT /label- glycosylation_site
XX
PN US5360896-A.
XX
PD 01-NOV-1994.
XX
PF 20-APR-1990; 90US-0511469.
XX
PR 26-APR-1990; 90JP-0108595.
XX
PA (TAKE) TAKEDA CHEM IND LTD.
XX
PI Igarashi K, Sasada R, Senoo M;
XX
DR WPI; 1994-349502/43.
DR N-PSDB; AAQ78217.

XX Muteins of naturally occurring fibroblast growth factor - into
PT which have been introduced at least one glycosylation site.
XX
PS Claim 13; Fig 3; 31pp; English.
XX
CC AA078217 encodes AAR65925 the fibroblast growth factor b (bFGF)
CC mutetin Asn7, where the native Gly7 residue has been replaced
CC by an Asn residue. The resultant glycosylation site is
CC glycosylated with a sugar chain selected from the following
CC group N-acetyl glucosamine, N-acetyl galactosamine, mannose,
CC galactose, fucose and cyalic acid. The mutetin has improved
CC stability, intracellular productivity and cell growth promoting
CC activity, it can also be produced in larger amounts than FGF
CC isolated from natural sources. AAR65925 can be used in the
CC treatment of traumas and burns, and in the production of a
CC preventative therapeutic medicine for thrombosis and
CC arteriosclerosis.
XX
SQ Sequence 146 AA;
XX
Query Match 100.0%; Score 467; DB 15; Length 146;
Best Local Similarity 100.0%; Pred. No. 2.5e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 1 FLRIHPDGRVDGVREKSDPHIKIQLOAEERGVSIGVCANRYLAMKEDGRLLASKCVTD 60
Db 31 flrlhpdgrvdgvreksdpkhlqlgaergvsvikgvcanylamkedgrllaskcvtd 90
OY 61 ECFEERLESNNNTYRSRKYTSWYAL 88
Db 91 ecffferlesnnyntyrskytswyval 118
OY
Db
RESULT 13
AAR65926
ID AAR65926 standard; Protein; 146 AA.
XX
AC AAR65926;
XX
DT 10-JUL-1995 (first entry)
XX
DE Fibroblast growth factor b (bFGF) mutetin Asn144.
XX
KW Fibroblast growth factor basic; bFGF; glycosylation sites;
KW traumas; burns; thrombosis; arteriosclerosis.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Region 144..146
FT /label= glycosylation_site
XX
PN US5360896-A.
XX
PD 01-NOV-1994.
XX
PF 20-APR-1990; 90US-0511469.
XX
PR 26-APR-1990; 90JP-0108595.
XX
PA (TAKE) TAKEDA CHEM IND LTD.
XX
PI Igarashi K, Sasada R, Senoo M;
XX
DR WPI; 1994-349502/43.
DR N-PSDB; AA078218.
XX
PT Muteins of naturally occurring fibroblast growth factor - into
XX which have been introduced at least one glycosylation site.
PS Claim 13; Fig 5; 31pp; English.

XX
CC AA078218 encodes AAR65926 the fibroblast growth factor b (bFGF)
CC mutetin Asn144, where the native Ala144 residue has been replaced
CC by an Asn residue. The resultant glycosylation site is
CC glycosylated with a sugar chain selected from the following
CC group N-acetyl glucosamine, N-acetyl galactosamine, mannose,
CC galactose, fucose and cyalic acid. The mutetin has improved
CC stability, intracellular productivity and cell growth promoting
CC activity, it can also be produced in larger amounts than FGF
CC isolated from natural sources. AAR65926 can be used in the
CC treatment of traumas and burns, and in the production of a
CC preventative therapeutic medicine for thrombosis and
CC arteriosclerosis.
XX
SQ Sequence 146 AA;
XX
Query Match 100.0%; Score 467; DB 15; Length 146;
Best Local Similarity 100.0%; Pred. No. 2.5e-48;
Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
OY 1 FLRIHPDGRVDGVREKSDPHIKIQLOAEERGVSIGVCANRYLAMKEDGRLLASKCVTD 60
Db 31 flrlhpdgrvdgvreksdpkhlqlgaergvsvikgvcanylamkedgrllaskcvtd 90
OY 61 ECFEERLESNNNTYRSRKYTSWYAL 88
Db 91 ecffferlesnnyntyrskytswyval 118
OY
Db
RESULT 14
AAY87847
ID AAY87847 standard; protein; 146 AA.
XX
AC AAY87847;
XX
DT 01-SEP-2000 (first entry)
XX
DE Human FGF-2 protein.
XX
KW FGF-2; fibroblast growth factor; cardiant; treatment; angiogenesis;
KW coronary artery disease; myocardial infarction injury; human.
XX
OS Homo sapiens.
XX
PN WO200021548-A2.
XX
PD 20-APR-2000.
XX
PF 13-OCT-1999; 99WO-US22936.
XX
PR 13-OCT-1998; 98US-0104103.
XX
PA (CHIR) CHIRON CORP.
PA (WHIT/) WHITEHOUSE M J.
XX
PI Kavanaugh WM;
XX
DR WPI; 2000-317840/27.
XX
PT Novel unit dose comprising fibroblast growth factor, its angiogenically
PT active fragment or mutetin for inducing cardiac angiogenesis, treating
PT coronary artery disease and reducing post myocardial infarction injury
PT
XX
PS Claim 1; Page 56-57; 67pp; English.
XX
CC This invention describes a novel unit dose (I), of fibroblast growth
CC factor (FGF) comprising 0.008-6.1 mg of a mammalian FGF comprising
CC sequence of 140 ((II) and (III)), 146 ((IV) and (V)), 205 (VI), 266
CC (VII), 207 ((VIII) and (XI)), 215 (IX), and 208 (X) amino acids (aa),
CC given in the specification, its angiogenically active fragment or
CC mutetin. The product of the invention has angiogenic and cardiant

CC activity. (I) is used for treating a human patient for coronary artery
CC disease, and inducing angiogenesis in the human heart. (I) further
CC provides an adjunct for reducing post myocardial infarction injury in
CC humans. The unit dose provides the human patient with a rapid and
CC therapeutic cardiac angiogenesis sufficient to obviate surgical
CC intervention and results in an superior increase in the treated
CC patients's exercise tolerance time (ETT). It also provides a safe and
CC therapeutically efficacious treatment for the patients with coronary
CC artery disease that lasts at least 6 months before a further treatment
CC is needed. The method provides superior increase of 1.5-2 minutes in
CC the treated patient's (ETT), compared to an increase of 30 seconds for
CC current modes treatment. This sequence represents the human FGF-2 protein
CC fragment described in the method of the invention.

XX Sequence 146 AA;

Query Match 100.0%; Score 467; DB 21; Length 146;

Best Local Similarity 100.0%; Pred. No. 2.5e-48;

Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLQLOAEERGVSISIKVCANRYLAMKEDGRLLASKCYTD 60

Db 31 flrihpdgrrvdgvrksdphiklqlgaergvsvikgvcanylamkedgrllaskcvtd 90

OY 61 ECFEERLESNNYNTYRSRKYTSWYVAL 88

Db 91 ecffferlesnnyntyrskrkytswyval 118

RESULT 15

AAE11974

ID AAE11974 standard; Protein; 146 AA.

XX AAE11974;

DT 18-DEC-2001 (first entry)

DE Human fibroblast growth factor-2 (FGF-2) #1.

KW Human; therapy; erectile dysfunction; fibroblast growth factor-2; FGF-2;

KW epidermal growth factor; EGF; platelet derived growth factor; PDGF;

KW vascular endothelial growth factor; VEGF; tissue growth factor; TGF;

KW Impotence; vasotropic.

OS Homo sapiens.

PN WO200168125-A2.

PD 20-SEP-2001.

PF 09-MAR-2001; 2001WO-US07702.

PR 10-MAR-2000; 2000US-188480P.

PR 11-MAY-2000; 2000US-203415P.

PA (CHIR) CHIRON CORP.

PI Whitehouse MJ;

DR WPI; 2001-616273/71.

DR N-PSDB; AAD19521.

XX Treating or preventing erectile dysfunction, comprises administering

XX growth factor, particularly fibroblast growth factor to blood vessels

XX in the penis, groin or leg

PS Claim 6; Page 32; 35pp; English.

XX The present invention relates to a method for treating or preventing

XX erectile dysfunction, comprising administering a fibroblast growth

XX factor (FGF), epidermal growth factor (EGF), platelet derived growth

XX factor (PDGF), vascular endothelial growth factor (VEGF) or tissue

CC growth factor (TGF). The invention is used to treat or prevent erectile
CC dysfunction, or impotence. The present sequence is a human FGF-2
CC protein.

XX Sequence 146 AA;

Query Match 100.0%; Score 467; DB 22; Length 146;

Best Local Similarity 100.0%; Pred. No. 2.5e-48;

Matches 88; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 FLRIHPDGRVDGVRKSDPHIKLQLOAEERGVSISIKVCANRYLAMKEDGRLLASKCYTD 60

Db 31 flrihpdgrrvdgvrksdphiklqlgaergvsvikgvcanylamkedgrllaskcvtd 90

OY 61 ECFEERLESNNYNTYRSRKYTSWYVAL 88

Db 91 ecffferlesnnyntyrskrkytswyval 118

Search completed: June 2, 2002, 18:03:40
Job time: 578 sec

Sun Jun 2 18:28:50 2002

us-09-642-277a-3.rag

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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:04:49 ; Search time 61.66 Seconds
(without alignments)
319.841 Million cell updates/sec

Title: US-09-642-277a-2

Perfect score: 619
Sequence: 1 LGDRGRGRALPGRLGGRGR.....FLRIHPDGRVDGVRKSDPH 114

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues

Total number of hits satisfying chosen parameters: 562222

Minimum DB seq length: 0

Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

SPTREMBL_19:*

- 1: sp_archaea:*
- 2: sp_bacteria:*
- 3: sp_fungi:*
- 4: sp_human:*
- 5: sp_invertebrate:*
- 6: sp_mammal:*
- 7: sp_mhc:*
- 8: sp_organelle:*
- 9: sp_phage:*
- 10: sp_plant:*
- 11: sp_rodent:*
- 12: sp_virus:*
- 13: sp_vertebrate:*
- 14: sp_unclassified:*
- 15: sp_rv1rus:*
- 16: sp_bacteriaph:*
- 17: sp_archaeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	619	100.0	114	4	Q16443
2	617	99.7	114	4	O00527
3	542	87.6	196	4	P78443
4	314	50.7	170	11	O60487
5	294.5	47.6	153	11	O925A3
6	252	40.7	155	13	O90Y92
7	194	31.3	130	6	O77767
8	174.5	28.2	59	4	O9UBK1
9	174.5	28.2	59	4	O16089
10	174.5	28.2	60	4	O16588
11	166.5	26.9	70	11	O54837
12	141	22.8	101	13	P79706
13	124	20.0	125	13	O987D8
14	123.5	20.0	249	11	O922D9
15	123.5	20.0	414	11	O922E1
16	121.5	19.6	588	12	Q91PQ8

17	120.5	19.5	381	4	Q96Q15	096q15 homo sapien
18	119	19.2	302	4	Q9UIS8	09uis8 homo sapien
19	119	19.2	411	4	Q9UBB5	09ubb5 homo sapien
20	119	19.2	1186	5	O61080	061080 acanthamoeb
21	118	19.1	476	12	O80890	080890 herpesvirus
22	115	18.6	619	12	Q91PQ9	091pq9 cynomolgus
23	111	17.9	511	12	O91332	091332 cercopithec
24	110	17.8	1958	12	O69340	069340 pseudorabie
25	107.5	17.4	400	10	O92RM3	092rm3 antirrhinum
26	107.5	17.4	1215	5	O77202	077202 acanthamoeb
27	106.5	17.2	106	12	O41981	041981 murid herpe
28	106.5	17.2	905	5	O95PX8	095px8 caenorhabdi
29	104	16.8	193	10	O94FP5	094fp5 arabidopsis
30	104	16.8	243	10	O9C7H1	09c7h1 arabidopsis
31	104	16.8	320	10	O9S2Z1	09s2z1 arabidopsis
32	104	16.8	320	10	O94AH9	094ah9 arabidopsis
33	104	16.8	559	5	O46132	046132 locusta mig
34	103.5	16.7	305	5	O17805	017805 caenorhabdi
35	103.5	16.7	316	5	O93207	093207 caenorhabdi
36	103.5	16.7	344	6	O9NOB4	09nob4 macaca fasc
37	103.5	16.7	350	10	O93VA8	093va8 arabidopsis
38	103.5	16.7	369	10	O9LQR7	09lqr7 arabidopsis
39	103	16.6	189	10	O9FK53	09fk53 arabidopsis
40	103	16.6	203	11	O62084	062084 mus musculu
41	102.5	16.6	322	13	O9PTB4	09ptb4 brachydantio
42	102	16.5	1014	10	O9SHF3	09shf3 arabidopsis
43	102	16.5	1432	10	O9EPR8	09ep8 chlamydomon
44	101.5	16.4	316	5	O93210	093210 caenorhabdi
45	101.5	16.4	529	2	P94909	P94909 microbacter

ALIGNMENTS

RESULT 1

PRELIMINARY; PRT; 114 AA.

Q16443
ID Q16443
AC Q16443;
DT 01-NOV-1996 (TREMBLrel. 01, Created)
DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=92152654; PubMed=1785797;
RA Florkiewicz R.Z., Shibata F., Barankiewicz T., Baird A.,
RA Gonzalez A.M., Florkiewicz E., Shah N.;
RT "Basic fibroblast growth factor gene expression.";
RL Ann. N. Y. Acad. Sci. 638:109-126(1991).
DR EMBL; S81809; AAB21432.2; .
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HBGF_FGF.
DR Pfam; PF00167; FGF; 1.
DR PRODOM; PD000831; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 1
SQ SEQUENCE 114 AA; 11670 MW; 88DCA49C774D61AA CRC64;

Query Match 100.0%; Score 619; DB 4; Length 114;
Best Local Similarity 100.0%; Pred. No. 4.4e-48;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 LGDRGRGRALPGRLGGRGRGRAPERVGGRGRTAAAPRAAPARGSRPGPAGTMAAGS: 60
DB 1 LGDRGRGRALPGRLGGRGRGRAPERVGGRGRTAAAPRAAPARGSRPGPAGTMAAGS: 60
QY 61 ITTLPALEPDGSGAAPPFGHFKDKRLVCKNGGFLRIHPDGRVDGVRKSDPH 114
|||||

Db 61 ITTLPALPEDGSGAAPPFGHKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPH 114

RESULT 2

ID 000527 PRELIMINARY; PRT; 114 AA.

AC 000527;

DT 01-JAN-1998 (TREMBlrel. 05, Created)

DT 01-JAN-1999 (TREMBlrel. 09, last sequence update)

DT 01-JUN-2001 (TREMBlrel. 17, last annotation update)

DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).

GN FGF-2 OR FGF2.

OS Homo sapiens (Human).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

OX NCBI_TaxID=9606;

RN 111

RP SEQUENCE FROM N.A.

RC TISSUE=BLOOD;

RA Handschug K., Glaeser C.;

RT "Mutations in the 5' untranslated region of the FGF-2 gene: transition G to A on position 19 and transversion G to C on position 97.";

RL Submitted (NOV-1999) to the EMBL/GenBank/DBJ databases.

DR EMBL: Y13468; CAA73868.1; -

DR EMBL: AJ250952; CAB61690.1; -

DR HSSP: P09038; 1BFF.

DR InterPro: IPR002209; HBGF_FGF.

DR Pfam: PF00167; FGF; 1.

DR ProDom: PD000831; HBGF_FGF; 1.

FT NON_TER 114 114

SO SEQUENCE 114 AA; 11688 MW; 98DC6381C1960C1D CRC64;

Query Match

Best Local Similarity 99.7%; Score 617; DB 4; Length 114;

Matches 113; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 LGDRGRGRLPGRLGGRGRGTAAPRAAPARGSRPGPAGTMAAGS 60

DB 1 MGDRGRGRALPGRLGGRGRGTAAPRAAPARGSRPGPAGTMAAGS 60

OY 61 ITTLPALPEDGSGAAPPFGHKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPH 114

DB 61 ITTLPALPEDGSGAAPPFGHKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPH 114

RESULT 3

ID P78443 PRELIMINARY; PRT; 196 AA.

AC P78443;

DT 01-MAY-1997 (TREMBlrel. 03, Created)

DT 01-MAY-1997 (TREMBlrel. 03, last sequence update)

DT 01-JUN-2001 (TREMBlrel. 17, last annotation update)

DE 21 KDA BASIC FIBROBLAST GROWTH FACTOR (BFGF).

GN FGF2.

OS Homo sapiens (Human).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

OX NCBI_TaxID=9606;

RN 111

RP SEQUENCE FROM N.A.

RX MEDLINE=89184522; PubMed=2538817;

RA Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,

RA Llaunzun P., Chalon P., Tauber J.P., Amalric F., Smith J.A., Caput D.;

RT "High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons.";

RL Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).

RN 121

RP SEQUENCE OF 81-168 FROM N.A.

RX MEDLINE=93038590; PubMed=1417798;

RA Watson R., Anthony F., Pickett M., Lambden P., Masson G.M.,

RA Thomas E.J.;

RT "Reverse transcription with nested polymerase chain reaction shows expression of basic fibroblast growth factor transcripts in human granulosa and cumulus cells from in vitro fertilisation patients.";

RT Biochem. Biophys. Res. Commun. 187:1227-1231(1992).

DR EMBL: J04513; AAA52532.1; -

DR EMBL: S47380; AAD13853.1; -

DR HSSP: P09038; 1BFF.

DR InterPro: IPR002209; HBGF_FGF.

DR InterPro: IPR002348; IL1_HBGF.

DR Pfam: PF00167; FGF; 1.

DR PRINTS: PR00262; IL1HBGF.

DR ProDom: PD000831; HBGF_FGF; 1.

DR SMART: SM00442; FGF; 1.

DR PROSITE: PS00247; HBGF_FGF; 1.

SO SEQUENCE 196 AA; 21203 MW; D6B5447137E60343 CRC64;

Query Match

Best Local Similarity 87.6%; Score 542; DB 4; Length 196;

Matches 99; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 15 LGGRGRGRLPGRLGGRGRGTAAPRAAPARGSRPGPAGTMAAGSITTLPALPEDGSG 74

DB 1 MGGRGRGRAPERVGGRGRGTAAPRAAPARGSRPGPAGTMAAGSITTLPALPEDGSG 60

OY 75 AAPPFGHKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPH 114

DB 61 AAPPFGHKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPH 100

RESULT 4

ID Q60487 PRELIMINARY; PRT; 170 AA.

AC Q60487;

DT 01-NOV-1996 (TREMBlrel. 01, Created)

DT 01-MAY-2000 (TREMBlrel. 13, last sequence update)

DT 01-JUN-2001 (TREMBlrel. 17, last annotation update)

DE FIBROBLAST GROWTH FACTOR 2 (FGF-2) (FIBROBLAST GROWTH FACTOR, BASIC) (BFGF) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR) (FRAGMENTS).

GN FGF2.

OS Cavia porcellus (Guinea pig).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Hystriocognathi; Cavidae; Cavia.

OX NCBI_TaxID=10141;

RN 111

RP SEQUENCE OF 53-170 FROM N.A.

RC TISSUE=PROSTATE;

RA Ricciardelli C.;

RL Submitted (JAN-1996) to the EMBL/GenBank/DBJ databases.

RN 121

RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.

RX MEDLINE=89273588; PubMed=2730645;

RA Sommer A., Moscattelli D., Rifkin D.B.;

RT "An amino-terminally extended and post-translationally modified form of a 25kD basic fibroblast growth factor.";

RT Biochem. Biophys. Res. Commun. 160:1267-1274(1989).

RN 131

RP PARTIAL SEQUENCE, AND METHYLATION.

RX MEDLINE=91322114; PubMed=1713785;

RA Burgess W.H., Bizik J., Mehlman T., Quarto N., Rifkin D.B.;

RT "Direct evidence for methylation of arginine residues in high molecular weight forms of basic fibroblast growth factor.";

RT Cell Regul. 2:87-93(1991).

RN 141

RP CHARACTERIZATION.

RC TISSUE=BRAIN;

RX MEDLINE-87289686; PubMed-3475702;
RA Moscatelli D., Joseph-Silverstein J., Manejlas R., Rifkin D.B.;
RT "Mr 25,000 heparin-binding protein from guinea pig brain is a high
molecular weight form of basic fibroblast growth factor.";
Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782(1987).
CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPHIC
FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC
CC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND
HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR
CC MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION,
CC PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS
CC SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO
CC ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).
CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO EGFRI AND AT LEAST
CC ONE HEPARAN SULFATE (BY SIMILARITY).
CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS; 18 KDA AND 25 KDA
CC (SHOWN HERE); MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION
CC INITIATION SITES. BOTH FORMS ARE ACTIVE.
CC -1- PTM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLE).
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -1- CAUTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE
CC INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE
CC SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF
CC PARTIAL AMINO-ACID SEQUENCING.
DR EMBL: L75974; AAA85394.1; ALT_FRAME.
DR HSSP; P09038; 1BLA.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
DR Growth factor; Mitogen; Vascularization; Heparin-binding;
KW Alternative Initiation; Methylation; Phosphorylation;
KW Developmental protein.
FT NON_TER 1 1
FT NON_CONS 15 16
FT CHAIN <1 170
FT INIT_MET 22 170
FT DOMAIN 11 14
FT NON_CONS 50 51
FT SITE 61 63
FT SITE 103 105
FT BINDING 50 51
FT BINDING 105 105
FT BINDING 143 159
FT MOD_RES 4 4
FT MOD_RES 6 6
FT MOD_RES 8 8
FT MOD_RES 8 8
FT MOD_RES 136 136
FT SEQUENCE 170 AA; 18354 MW; F36BDBC736E5FEBC CRC64;
Query Match. 50.7%; Score 314; DB 11; length 170;
Best Local Similarity 71.6%; Pred. No. 9.4e-21;
Matches 63; Conservative 2; Mismatches 9; Indels 14; Gaps 2;
OY 27 VGGRGGRGTAPRAAPARASRPAGTMAAGSTITLPALPEDGGSGAFPPGHFKDPKR 86
Db 1 VGGRGGRGTAA-----AARREPGGAMAAGSTITLPALPEDGGCAFAFGHFKDP-- 50
OY 87 LYCKNGGFRLRHPPDGRVDGVREKSDPH 114
Db 51 -----NGGFFLRHPPDGRVDGVREKSDPH 74
RESULT 5
ID 0925A3 PRELIMINARY; PRT; 153 AA.
AC 0925A3;

DT 01-DEC-2001 (TREMBLrel. 19, Created)
DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE FIBROBLAST GROWTH FACTOR 2.
GN FGF-2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-FVB/N;
RA Dirks R.P., Griep A.E.;
RT "Multiple novel variants of fibroblast growth factor 2 transcripts are
expressed in mouse embryos.";
RT Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
RL EMBL; AY027551; AAK52308.1;
DR EMBL; AY027551; AAK52308.1;
SQ SEQUENCE 153 AA; 17024 MW; AD8163CD8FA2FAAB CRC64;
Query Match. 47.6%; Score 294.5; DB 11; length 153;
Best Local Similarity 91.5%; Pred. No. 4.6e-19;
Matches 54; Conservative 2; Mismatches 2; Indels 1; Gaps 1;
OY 56 MAAGSTITLPALPEDGGSGAFPPGHFKDPKRLCKNGGFLRIHPDGRVDGVREKSDPH 114
Db 1 MAAGSTITLPALPEDGGA-AFPPGHFKDPKRLCKNGGFLRIHPDGRVDGVREKSDPH 58
RESULT 6
ID 090Y92 PRELIMINARY; PRT; 155 AA.
AC 090Y92;
DT 01-DEC-2001 (TREMBLrel. 19, Created)
DT 01-DEC-2001 (TREMBLrel. 19, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE FIBROBLAST GROWTH FACTOR-2.
GN FGF-2.
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandridae; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RA Susaki K., Nakamura K., Chiba C., Saito T.;
RT "Expression of FGF2 during newt retinal development and
regeneration.";
RT Submitted (JUL-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AB064664; BAB63249.1;
SQ SEQUENCE 155 AA; 17278 MW; 2B583058538AB8D9 CRC64;
Query Match. 40.7%; Score 252; DB 13; length 155;
Best Local Similarity 78.0%; Pred. No. 2.8e-15;
Matches 46; Conservative 5; Mismatches 8; Indels 0; Gaps 0;
OY 56 MAAGSTITLPALPEDGGSGAFPPGHFKDPKRLCKNGGFLRIHPDGRVDGVREKSDPH 114
Db 1 MAAGSTITLPALPEDGNGGTFPPGFKDPKRLCKNGGFLRIHPDGRVDGVREKSDPH 59
RESULT 7
ID 077767 PRELIMINARY; PRT; 130 AA.
AC 077767;
DT 01-NOV-1998 (TREMBLrel. 08, Created)
DT 01-NOV-1998 (TREMBLrel. 08, Last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (BFGF) (FGF-2) (HEPARIN-BINDING GROWTH
DE FACTOR 2) (HBGF-2) (PROSTATROPIN) (PROSTATIC GROWTH FACTOR)
DE (FRAGMENT).
GN BFGF.
OS Canis familiaris (Dog).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Euthera; Carnivora; Fissipedia; Canidae; Canis.
OX NCBI_TaxID-9615;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-ADRENAL GLAND;
RA Trochta O.A., Jacobs R.M., LaMaire J.;
RT "The role of bFGF in canine Hemangiosarcoma";
RL Submitted (APR-1998) to the EMBL/GenBank/DBJ databases.
CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUROTROPIC
CC FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC
CC PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND
CC HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR
CC MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION,
CC PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS
CC SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO
CC ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).
CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST
CC ONE HEPARAN SULFATE (BY SIMILARITY).
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
DR EMBL; AF060562; AAC35912.1; -
DR HSSP; P09038; 1BGF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding;
KW Phosphorylation; Developmental protein.
FT NON_TER 1 1
FT SITE 21 23 CELL ATTACHMENT SITE (POTENTIAL).
FT SITE 63 65 CELL ATTACHMENT SITE (POTENTIAL).
FT BINDING 10 11 HEPARIN (BY SIMILARITY).
FT BINDING 65 65 HEPARIN (BY SIMILARITY).
FT BINDING 103 119 HEPARIN (BY SIMILARITY).
FT MOD_RES 48 48 PHOSPHORYLATION (BY SIMILARITY).
FT MOD_RES 96 96 PHOSPHORYLATION (BY SIMILARITY).
FT NON_TER 130 130
SQ SEQUENCE 130 AA; 14902 MW; 21900876E878FAEA CRC64;

Query Match 31.3%; Score 194; DB 6; Length 130;
Best Local Similarity 100.0%; Pred. No. 3.4e-10;
Matches 34; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 81 FKDPKRLCYCKNGGFLRIHPDGRVGVREKSDPH 114
DB 1 FKDPKRLCYCKNGGFLRIHPDGRVGVREKSDPH 34

RESULT 8
OYUBK1 PRELIMINARY; PRT; 59 AA.
AC OYUBK1;
DT 01-MAY-2000 (TREMBLrel. 13, Created)
DT 01-MAY-2000 (TREMBLrel. 13, Last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
DE ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN FGFA.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Euthera; Primates; Catarrhini; Homnidae; Homo.
OX NCBI_TaxID-9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE-93181239; PubMed-7680120;
RA Payson R.A., Canatan H., Chotani M.A., Wang W.P., Harris S.E.,
RA Myers R.L., Chiu I.M.;
RT "Cloning of two novel forms of human acidic fibroblast growth factor
RT (aFGF) mRNA";
RL Nucleic Acids Res. 21:489-495(1993).

DR EMBL; L01487; AAA52447.1; -
DR EMBL; L01485; AAA52425.1; -
DR HSSP; P05230; 2AXM.
DR InterPro; IPR002209; HBGF_FGF.
DR Pfam; PF00167; FGF; 1.
DR PRODOM; PD000831; HBGF_FGF; 1.
FT NON_TER 59 59
SQ SEQUENCE 59 AA; 6606 MW; 9894A5F64847148A CRC64;

Query Match 28.2%; Score 174.5; DB 4; Length 59;
Best Local Similarity 59.3%; Pred. No. 8.4e-09;
Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

OY 56 MAAGSITTLPALPEDGGSGAFPFGHFKDPKRLCYCKNGGFLRIHPDGRVGVREKSDPH 114
DB 1 MAAGSITTLPALTEKFN--LPPGNYKPKRLCYCKNGGFLRIHPDGRVGVREKSDPH 56

RESULT 9
OYUBK1 PRELIMINARY; PRT; 59 AA.
AC OYUBK1;
DT 01-NOV-1996 (TREMBLrel. 01, Created)
DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
DE ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Euthera; Primates; Catarrhini; Homnidae; Homo.
OX NCBI_TaxID-9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE-94069734; PubMed-7504343;
RA Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;
RT "The expression of acidic fibroblast growth factor (heparin-binding
RT growth factor-1) and cytokine genes in human cardiac allografts and T
RT cells";
RL Transplantation 56:1177-1182(1993).
DR EMBL; S67294; AAB29059.1; -
DR HSSP; P05230; 2AXM.
DR InterPro; IPR002209; HBGF_FGF.
DR Pfam; PF00167; FGF; 1.
DR PRODOM; PD000831; HBGF_FGF; 1.
FT NON_TER 59 59
SQ SEQUENCE 59 AA; 6595 MW; 9C83D1E64847148A CRC64;

Query Match 28.2%; Score 174.5; DB 4; Length 59;
Best Local Similarity 59.3%; Pred. No. 8.4e-09;
Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

OY 56 MAAGSITTLPALPEDGGSGAFPFGHFKDPKRLCYCKNGGFLRIHPDGRVGVREKSDPH 114
DB 1 MAAGSITTLPALTEKFN--LPPGNYKPKRLCYCKNGGFLRIHPDGRVGVREKSDPH 56

RESULT 10
OYUBK1 PRELIMINARY; PRT; 60 AA.
AC OYUBK1;
DT 01-NOV-1996 (TREMBLrel. 01, Created)
DT 01-NOV-1996 (TREMBLrel. 01, Last sequence update)
DT 01-JUN-2001 (TREMBLrel. 17, Last annotation update)
DE ACIDIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Euthera; Primates; Catarrhini; Homnidae; Homo.
OX NCBI_TaxID-9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE-94069734; PubMed-7504343;
RA Zhao X.M., Yeoh T.K., Hiebert M., Frist W.H., Miller G.G.;

RT "The expression of acidic fibroblast growth factor (heparin-binding
RT growth factor-1) and cytokine genes in human cardiac allografts and r
RT cells.";
RL Transplantation 56:1177-1182(1993).
RN [2]

RP SEQUENCE FROM N.A.
RX MEDLINE-92202857; PubMed-1372643;
RA Li Y.L., Kha H., Golden J.A., Mighelielsen A.A.J., Goetzel E.J.,
RA Turk E.J.;
RT "An acidic fibroblast growth factor protein generated by alternate
RT splicing acts like an antagonist.";
RL J. Exp. Med. 175:1073-1080(1992).
DR EMBL; S67292; AAB29058.1; -
DR EMBL; X65779; CAA46662.1; -
DR HSSP; P05230; 2AXM.
DR InterPro; IPR002209; HBGF_FGF.
DR Pfam; PF00167; FGF; 1.
DR ProDom; PD000831; HBGF_FGF; 1.
FT NON_TER 60
SQ SEQUENCE 60 AA; 6697 MW; B53E08C406484714 CRC64;

Query Match 28.2%; Score 174.5; DB 4; Length 60;
Best Local Similarity 59.3%; Pred. No. 8.5e-09;
Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

OY 56 MAAGSITLPLPEDGGSGAFPPGPKRLKLYCKNGFRLRHDPGRVDGVRKSDPH 114
Db 1 MAEGITTTALTTEKEN--LPPGNYKKPKLLYCSNGHFLRLPDGTVDGTRDRSDQH 56

RESULT 11

ID 054837 PRELIMINARY; PRT; 70 AA.
AC 054837;
DT 01-JUN-1998 (TREMBLrel. 06, Created)
DT 01-JUN-1998 (TREMBLrel. 06, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE FIBROBLAST GROWTH FACTOR-1 (FRAGMENT).
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=C3H/HEN; TISSUE=LIVER;
RA Zhang Y.-X., Hackshaw K.V.;
RT "Mouse FGF-1 1.2 mRNA is expressed in mouse liver.";
RL Submitted (JUL-1997) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF012926; AAB94020.1; -
DR HSSP; P05230; 2AXM.
DR InterPro; IPR002209; HBGF_FGF.
DR Pfam; PF00167; FGF; 1.
DR ProDom; PD000831; HBGF_FGF; 1.
FT NON_TER 70
SQ SEQUENCE 70 AA; 7677 MW; D5FD16ACC498EBA6 CRC64;

Query Match 26.9%; Score 166.5; DB 11; Length 70;
Best Local Similarity 48.7%; Pred. No. 5.1e-08;
Matches 38; Conservative 4; Mismatches 25; Indels 11; Gaps 2;

OY 37 AAPRAAPARGSRPGAGTMAAGSITLPLPEDGGSGAFPPGPKRLKLYCKNGFEL 96
Db 4 AEFTTAACR-----MAEGITTTALTTEREN--LPIGNYYKKPKLLYCSNGHFL 52
OY 97 RIHPDGRVDGVRKSDPH 114
Db 53 RILPDGTVDGTRDRSDQH 70

RESULT 12
P79706

ID P79706 PRELIMINARY; PRT; 101 AA.
AC P79706;

DT 01-MAY-1997 (TREMBLrel. 03, Created)
DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE BASIC FGF (FRAGMENT).
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=EMBRYO;
RA Suzuki A.S., Tabata T., Sakaguchi K., Takabatake T., Takeshima K.,
RA Kaneda T.;
RT "Serial expression of the genes in a mesodermalizing ectoderms of
RT early Cynops gastrula.";
RL Submitted (NOV-1996) to the EMBL/GenBank/DBJ databases.
DR EMBL; D89443; BAA13958.1; -
DR HSSP; P09038; 4EGF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 1
SQ SEQUENCE 101 AA; 11907 MW; 74A16C866C1F457A CRC64;

Query Match 22.8%; Score 141; DB 13; Length 101;
Best Local Similarity 80.6%; Pred. No. 1.4e-05;
Matches 25; Conservative 3; Mismatches 3; Indels 0; Gaps 0;

OY 84 PKRLYCKNGFELRIHPDGRVDGVRKSDPH 114
Db 1 PKRLYCKNGFELRINSKGVDGVRKSDSY 31

RESULT 13
ID 098TD8 PRELIMINARY; PRT; 125 AA.
AC 098TD8;

DT 01-JUN-2001 (TREMBLrel. 17, Created)
DT 01-JUN-2001 (TREMBLrel. 17, Last sequence update)
DT 01-DEC-2001 (TREMBLrel. 19, Last annotation update)
DE FIBROBLAST GROWTH FACTOR-2 (FRAGMENT).
GN FGF-2.
OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandroidea; Salamandridae; Cynops.
OX NCBI_TaxID=8330;
RN [1]
RP SEQUENCE FROM N.A.
RA Mizuno N., Hayashi T., Kondoh H., Okamoto M.;
RT "Cynops fibroblast growth factor-2.";
RL Submitted (OCT-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AB049625; BAB40835.1; -
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 1
SQ SEQUENCE 125 AA; 14244 MW; 5C27F41DC6E60C13 CRC64;

Query Match 20.0%; Score 124; DB 13; Length 125;

Sun Jun 2 18:28:50 2002

us-09-642-277a-2.rspt

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:05:14 ; Search time 20.21 Seconds
(without alignments)
218.408 Million cell updates/sec

Title: US-09-642-277A-2
Perfect score: 619
Sequence: 1 LGDRGRGRLPGRLGGRGR.....FLRIHPDGRVDGVRKSDPH 114

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues

Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SwissProt_40:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	328	53.0	155	1	EGF2_BOVIN
2	328	53.0	155	1	EGF2_HUMAN
3	322	52.0	155	1	EGF2_SHEEP
4	309.5	50.0	154	1	EGF2_RAT
5	309	49.9	158	1	EGF2_CHICK
6	294.5	47.6	154	1	EGF2_MOUSE
7	290.5	46.9	156	1	EGF2_MONDO
8	287	46.4	137	1	EGF2_RABBIT
9	244	39.4	155	1	EGF2_XENLA
10	174.5	28.2	152	1	EGF1_PIG
11	174.5	28.2	155	1	EGF1_HUMAN
12	173.5	28.0	155	1	EGF1_MESAU
13	172.5	27.9	155	1	EGF1_CHICK
14	163.5	26.4	155	1	EGF1_MOUSE
15	160.5	25.9	155	1	EGF1_BOVIN
16	121.5	19.6	1733	1	VNDA_PRAWA
17	119	19.2	1168	1	MYSC_ACACA
18	118.5	19.1	641	1	EBN1_EBV
19	107.5	17.4	809	1	OSB1_RABIT
20	105	17.0	297	1	FBRL_LEIMA
21	104	17.0	825	1	SE5_RAT
22	104	16.8	194	1	EGF4_CHICK
23	102.5	16.6	1453	1	CALL_CHICK
24	102	16.5	266	1	FGP5_RAT
25	102	16.5	807	1	OSB1_HUMAN
26	99	16.0	202	1	FGF4_MOUSE
27	99	16.0	1147	1	MYSB_ACACA
28	98.5	15.9	264	1	FGF5_MOUSE
29	98.5	15.9	747	1	SPDI_NEPCL
30	98	15.8	283	1	CC19-CAEBL
31	97.5	15.8	352	1	FBRL-CAEBL
32	96.5	15.6	206	1	FGF4_BOVIN
33	95.5	15.4	671	1	CALL_RAT

34	95.5	15.4	860	1	ELS_MOUSE	P54320 mus musculus
35	95.5	15.4	1453	1	CALL_MOUSE	P11087 mus musculus
36	95.5	15.4	1460	1	CALL_CANFA	O9xsj7 canis famli
37	95.5	15.4	1464	1	CALL_HUMAN	P02452 homo sapien
38	95	15.3	327	1	FBRL_GIALA	Q24957 giardia lam
39	95	15.3	713	1	NUCL_MESAU	P08199 mesocricetu
40	95	15.3	747	1	CA12_BOVIN	P02459 bos taurus
41	95	15.3	1356	1	CA21_ONCMY	O93484 oncorhynchu
42	95	15.3	2944	1	CA17_HUMAN	Q02388 homo sapien
43	94	15.2	268	1	EGF5_HUMAN	P12034 homo sapien
44	94	15.2	1496	1	CA25_HUMAN	P05997 homo sapien
45	93.5	15.1	375	1	PSPD_HUMAN	P35247 homo sapien

ALIGNMENTS

RESULT	1	STANDARD;	PRT;	155 AA.
EGF2_BOVIN				
AC	P03969;			
DT	23-OCT-1986 (Rel. 02, Created)			
DT	23-OCT-1986 (Rel. 02, Last sequence update)			
DT	01-MAR-2002 (Rel. 41, Last annotation update)			
DE	Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin) [Contains: Kidney-derived growth factor].			
DE	FGF2 OR FGF-2.			
GN	Bos taurus (Bovine).			
OS	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;			
OC	Bovidae; Bovinae; Bos.			
OX	NCBI_TaxID=9913;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=86261806; PubMed=2425435;			
RA	Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J.,			
RA	Hjerriid K.A., Gospodarowicz D., Fiddes J.C.;			
RT	"Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";			
RT	Science 233:545-548(1986).			
RL	[2]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE=87217066; PubMed=3472745;			
RA	Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;			
RA	"Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";			
RT	Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).			
RL	[3]			
RP	SEQUENCE OF 10-155.			
RX	MEDLINE=86016731; PubMed=3863109;			
RA	Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R.,			
RA	Gospodarowicz D., Boehlen P., Guillemin R.;			
RT	"Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FGF.";			
RT	Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).			
RL	[4]			
RP	SEQUENCE OF 1-9.			
RX	MEDLINE=86295737; PubMed=3741423;			
RA	Ueno N., Baird A., Esch F., Ling N., Guillemin R.;			
RT	"Isolation of an amino terminal extended form of basic fibroblast growth factor.";			
RT	Biochem. Biophys. Res. Commun. 138:580-588(1986).			
RL	[5]			
RP	SEQUENCE OF 25-41.			
RC	TISSUE=Kidney;			
RX	MEDLINE=86095426; PubMed=4081126;			
RA	Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;			
RT	"Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor.";			
RT	Regul. Pept. 12:201-213(1985).			

RN [6]
 RP SEQUENCE OF 21-40.
 RC TISSUE-Kidney;
 RX MEDLINE-87119165; Pubmed-3809608;
 RA Ueno N., Baird A., Esch F., Shimasaki S., Ling N., Gullilein R.;
 RT "Purification and partial characterization of a mitogenic factor from
 RT bovine liver: structural homology with basic fibroblast growth
 RT factor";
 RL Regul. Pept. 16:135-145(1986).
 RN [7]
 RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
 RX MEDLINE-91095983; Pubmed-1702556;
 RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
 RT Hsu B.T., Rees D.C.;
 RT "Three-dimensional structures of acidic and basic fibroblast growth
 RT factors";
 RL Science 251:90-93(1991).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
 CC AFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
 CC -----
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 CC -----
 CC EMBL; M13440; AAA30518.1; -
 DR PIR; A24663; GKBOB.
 DR PIR; A24819; A24819.
 DR PIR; A32878; A32878.
 DR PDB; 1BAS; 31-OCT-93.
 DR InterPro; IPR002209; HBGF_FGF.
 DR InterPro; IPR002348; IL1_HBGF.
 DR Pfam; PF00167; FGF; 1.
 DR PRINTS; PR00262; IL1HBGF.
 DR PRODOM; PD000831; HBGF_FGF; 1.
 DR SMART; SM00442; FGF; 1.
 DR PROSITE; PS00247; HBGF_FGF; 1.
 KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;
 KW 3D-structure.
 FT PROPEP 1 9
 FT CHAIN 10 155 HEPARIN-BINDING GROWTH FACTOR 2.
 FT CHAIN 25 155 KIDNEY-DERIVED GROWTH FACTOR.
 FT SITE 46 48 CELL ATTACHMENT SITE (POTENTIAL).
 FT SITE 88 90 CELL ATTACHMENT SITE (POTENTIAL).
 FT BINDING 27 31 HEPARIN (POTENTIAL).
 FT BINDING 116 119 HEPARIN (POTENTIAL).
 FT STRAND 30 34
 FT TURN 35 38
 FT STRAND 39 43
 FT TURN 45 46
 FT STRAND 49 52
 FT TURN 55 56
 FT HELIX 58 60
 FT STRAND 62 68
 FT TURN 69 70
 FT STRAND 71 76
 FT TURN 77 80
 FT STRAND 81 85
 FT TURN 87 88
 FT STRAND 91 94
 FT HELIX 99 101
 FT STRAND 103 107
 FT TURN 109 110
 FT STRAND 113 117

FT TURN 121 122
 FT STRAND 124 124
 FT STRAND 127 127
 FT TURN 129 130
 FT STRAND 133 133
 FT HELIX 136 138
 FT TURN 141 142
 FT HELIX 144 146
 FT STRAND 148 151
 SO SEQUENCE 155 AA; 17250 MW; BE6CE70FA6107129 CRC64;

 Query Match 53.08; Score 328; DB 1; Length 155;
 Best Local Similarity 100.08; Pred. No. 1.7e-18;
 Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

 QY 56 MAGSITTPALPEDGSGAPPGHFKDPKRLCKNGGFLRIHPDGRVDGVRKSDPH 114
 Db 1 MAGSITTPALPEDGSGAPPGHFKDPKRLCKNGGFLRIHPDGRVDGVRKSDPH 59

 RESULT 2
 ID FGF2_HUMAN STANDARD; PRT; 155 AA.
 AC P09038;
 DT 01-NOV-1988 (Rel. 09, Created)
 DT 01-NOV-1988 (Rel. 09, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
 DE growth factor) (BFGF) (Prostatiopin).
 GN FGF2 OR FGF.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.
 OX NCBI_Taxid-9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE-87053817; Pubmed-3780670;
 RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Friedman J.,
 RA Gospodarowicz D., Fiddes J.C.;
 RT "Human basic fibroblast growth factor: nucleotide sequence and
 RT genomic organization";
 RL EMBO J. 5:2523-2528(1986).
 RN [2]
 RP SEQUENCE FROM N.A.
 RX MEDLINE-87217066; Pubmed-3472745;
 RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
 RT "Human basic fibroblast growth factor: nucleotide sequence, genomic
 RT organization, and expression in mammalian cells";
 RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
 RN [3]
 RP SEQUENCE FROM N.A.
 RX MEDLINE-87213238; Pubmed-3579930;
 RA Sommer A., Brewer M.T., Thompson R.C., Moscatelli D., Prestia M.,
 RA Rifkin D.B.;
 RT "A form of human basic fibroblast growth factor with an extended
 RT amino terminus";
 RL Biochem. Biophys. Res. Commun. 144:543-550(1987).
 RN [4]
 RP SEQUENCE FROM N.A.
 RX MEDLINE-87162468; Pubmed-2435575;
 RA Kurokawa T., Sasada R., Iwane M., Igarashi K.;
 RT "Cloning and expression of cDNA encoding human basic fibroblast
 RT growth factor";
 RL FEBS Lett. 213:189-194(1987).
 RN [5]
 RP SEQUENCE FROM N.A.
 RX MEDLINE-89184522; Pubmed-2538817;
 RA Prats H., Kaghad M., Prats A.C., Klagsbrun M., Lelias J.M.,
 RA Liauzun P., Chalou P., Tauber J.P., Amalric F., Smith J.A.,
 RA Caput D.;
 RT "High molecular mass forms of basic fibroblast growth factor are
 RT initiated by alternative CUG codons";

FT TURN 141 142
FT HELIX 144 146
FT STRAND 148 152
SQ SEQUENCE 155 AA; 17254 MW; BE6CE13373007129 CRC64;

Query Match 53.0%; Score 328; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 1.7e-18;
Matches 59; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 56 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPH 114
Db 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPH 59

RESULT 3

FGF2_SHEEP
ID FGF2_SHEEP STANDARD; PRT; 155 AA.
AC P20003;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Caprinae; Ovis.
OX NCBI_TaxID=9940;
RN [1]
RP SEQUENCE FROM N.A.
RA Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
RL Submitted (SEP-1994) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE OF 9-155.
RX MEDLINE=88055577; PubMed=3678486;
RA Simpson R.J., Moritz R.L., Lloyd C.J., Fabrl L.J., Nice E.C.,
RA Rubira M.R., Burgess A.W.;
RT "Primary structure of ovine pituitary basic fibroblast growth factor."
RT FEBS Lett. 224:128-132(1987).
RL -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AEGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL: L36136; AAA31519.1; .
DR PIR: S00185; S00185.
DR HSSP: P09038; 1BFF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; IL1HBGF.
DR ProDom: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
KM Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 155
FT SITE 45 48
FT SITE 87 90

FT BINDING 27 31
FT BINDING 116 119
SQ SEQUENCE 155 AA; 17280 MW; B5F2364BA610606D CRC64;

Query Match 52.0%; Score 322; DB 1; Length 155;
Best Local Similarity 98.3%; Pred. No. 4.8e-18;
Matches 58; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 56 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPH 114
Db 1 MAAGSITTLPALPEDGSGAFPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPH 59

RESULT 4

FGF2_RAT
ID FGF2_RAT STANDARD; PRT; 154 AA.
AC P13109;
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Muridae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Ovary;
RX MEDLINE=89061721; PubMed=3196337;
RA Shimazaki S., Emoto N., Koba A., Mercado M., Shibata F.,
RA Cooksey K., Baird A., Ling N.;
RT "Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of its mRNA."
RT Biochem. Biophys. Res. Commun. 157:256-263(1988).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE=Brain;
RX MEDLINE=88262516; PubMed=3387229;
RA Kurokawa T., Seno M., Igarashi K.;
RT "Nucleotide sequence of rat basic fibroblast growth factor cDNA."
RL Nucleic Acids Res. 16:5201-5201(1988).
RN [3]
RP SEQUENCE OF 1-28 FROM N.A.
RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Testis;
RX MEDLINE=97200905; PubMed=9048734;
RA Pasumarthi K.B.S., Jin Y., Cattini P.A.;
RT "Cloning of the rat fibroblast growth factor-2 promoter region and its response to mitogenic stimuli in glioma C6 cells."
RL J. Neurochem. 68:898-908(1997).
RN [4]
RP SEQUENCE OF 35-154 FROM N.A.
RC STRAIN=SPRAGUE-DAWLEY; TISSUE=Brain;
RX MEDLINE=92329546; PubMed=1378302;
RA El-Husseini A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
RT "PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA containing a unique 3' untranslated region."
RL Biochim. Biophys. Acta 1131:314-316(1992).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AEGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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DR EMBL; M22427; AAA41210.1; -
DR EMBL; X07285; CAA30265.1; -
DR EMBL; J78079; AAC53225.1; -
DR EMBL; X61697; CAA43863.1; -
DR PIR; S00876; S00876.
DR PIR; A31674; A31674.
DR HSSP; P09038; 1BFE.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA; 17139 MW; 1A0F14FF423D8403 CRC64;

Query Match 50.0%; Score 309.5; DB 1; length 154;
Best Local Similarity 96.6%; Pred. No. 4.1e-17;
Matches 57; Conservative 1; Mismatches 0; Indels 1; Gaps 1;

QY 56 MAAGSITLTPALPEDGGSGAFPFGHFKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPH 114
Db 1 MAAGSITSLPALPEDGG-GAFPFGHFKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPH 58

RESULT 5

FGF2_CHICK

ID FGF2_CHICK STANDARD; PRT; 158 AA.

AC P48800;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF).
GN FGF2 OR FGF-2.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=93246053; PubMed=7683281;
RA Borja A.Z., Zeller R., Meijers C.;
RT "Expression of alternatively spliced bFGF first coding exons and
RT antisense mRNAs during chicken embryogenesis.";
RL Dev. Biol. 157:110-118(1993).

-1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
-1- SUBUNIT: MONOMER.
-1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
AFGF.

-1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

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CC or send an email to license@isb-sib.ch).

DR EMBL; M95707; AAA48617.1; -
DR HSSP; P09038; 1BFE.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 12
FT CHAIN 13 158 BY SIMILARITY.
FT BINDING 30 34 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 119 122 HEPARIN (POTENTIAL).
SQ SEQUENCE 158 AA; 17374 MW; 7B69B684C1F1816 CRC64;

Query Match 49.9%; Score 309; DB 1; length 158;
Best Local Similarity 94.8%; Pred. No. 4.6e-17;
Matches 55; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 57 AAGSITLTPALPEDGGSGAFPFGHFKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPH 114
Db 5 AAGSITLTPALPDGGGGAFFPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPH 62

RESULT 6

FGF2_MOUSE

ID FGF2_MOUSE STANDARD; PRT; 154 AA.

AC P15655;
DT 01-APR-1990 (Rel. 14, Created)
DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF) (Prostatopl.).
GN FGF2 OR FGF-2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=90201563; PubMed=2318343;
RA Hebert J.M., Basiglio C., Goldfarb M., Haub O., Martin G.R.;
RT "Isolation of cDNAs encoding four mouse FGF family members and
RT characterization of their expression patterns during embryogenesis.";
RL Dev. Biol. 138:454-463(1990).

-1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CONCENTRATION OF THESE 2 GROWTH FACTORS.
-1- SUBUNIT: MONOMER.
-1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
AFGF.

-1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

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DR EMBL; M30644; AAA37621.1; -
DR EMBL; AF065903; AAC17503.1; -

DR EMBL; AF065904; AAC17504.1; -
DR EMBL; AF065905; AAC17505.1; -
DR PIR; C37360; C37360.
DR HSSP; P09038; 1BFF.
DR MGI; 95516; Fgf2.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA; 17153 MW; 689F677416274388 CRC64;

Query Match 47.6%; Score 294.5; DB 1; Length 154;
Best Local Similarity 91.5%; Pred. No. 5.5e-16;
Matches 54; Conservative 2; Mismatches 2; Indels 1; Gaps 1;

QY 56 MAAGSITTLPALPEDGGGAPPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPH 114
DB 1 MAAGSITTLPALPEDGA-APPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPH 58

RESULT 7

FGF2_MONDO STANDARD; PRT; 156 AA.

AC P48798;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).
GN FGF2.
OS Monodelphis domestica (Short-tailed grey opossum).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
OX NCBI_TaxID-13616;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-Eye;
RX MEDLINE-94296558; PubMed-8024698;
RA Kusewitt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;
RT *Characterization of cDNA encoding basic fibroblast growth factor of the marsupial Monodelphis domestica.*;
RL DNA Cell Biol. 13:549-554(1994).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
CC EMBL; Z15154; CAA78854.1; ALT_INIT.
CC HSSP; P09038; 1BFF.
CC InterPro; IPR002209; HBGF_FGF.
CC InterPro; IPR002348; IL1_HBGF.
CC Pfam; PF00167; FGF; 1.

DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 156 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 28 32 HEPARIN (POTENTIAL).
FT BINDING 117 120 HEPARIN (POTENTIAL).
SQ SEQUENCE 156 AA; 17303 MW; 7E655FCC49BF1209 CRC64;

Query Match 46.9%; Score 290.5; DB 1; Length 156;
Best Local Similarity 90.0%; Pred. No. 1.1e-15;
Matches 54; Conservative 2; Mismatches 3; Indels 1; Gaps 1;

QY 56 MAAGSITTLPALPED-GGSGAPPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPH 114
DB 1 MAAGSITTLPALSGDGGGGAFFPPGHFKDPKRLCYCKNGFFLRHPDGRVDGIREKSDPH 60

RESULT 8
FGF2_RABIT STANDARD; PRT; 137 AA.

AC P48799;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin) (Fragment).
GN FGF2.
OS Oryctolagus cuniculus (Rabbit).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.
OX NCBI_TaxID-9986;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN-NEW ZEALAND WHITE; TISSUE-Smooth muscle;
RX MEDLINE-93343209; PubMed-8342599;
RA Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Llau G.;
RT *Elevated expression of basic fibroblast growth factor in an immortalized rabbit smooth muscle cell line.*;
RL Am. J. Pathol. 143:518-527(1993).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
CC EMBL; L12034; AAA31248.1; -
CC HSSP; P09038; 1BFF.
CC InterPro; IPR002209; HBGF_FGF.
CC InterPro; IPR002348; IL1_HBGF.
CC Pfam; PF00167; FGF; 1.
CC ProDom; PD000831; HBGF_FGF; 1.
CC SMART; SM00442; FGF; 1.
CC PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT BINDING 18 22 HEPARIN (POTENTIAL).
FT BINDING 107 110 HEPARIN (POTENTIAL).
FT NON_TER 137 137
SQ SEQUENCE 137 AA; 15418 MW; 0D9E8A57B08E8C51 CRC64;

Query Match 46.4%; Score 287; DB 1; Length 137;
Best Local Similarity 100.0%; Pred. No. 1.8e-15;
Matches 50; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 65 PALPEDGSGAFPPGHFKDPKRLCKNGGFFLRHPDGRVDGVREKSDPH 114
Db 1 PALPEDGSGAFPPGHFKDPKRLCKNGGFFLRHPDGRVDGVREKSDPH 50

RESULT 9
ID FGF2_XENLA STANDARD; PRT; 155 AA.
AC P12226;
DT 01-OCT-1989 (Rel. 12, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF).
DE growth factor) (BFGF).
GN FGF2 OR FGF-2.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidea; Pipidae;
OC Xenopodinae; Xenopus.
OX NCBI_TaxID=8355;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=89058621; PubMed=3194757;
RA Kimelman D., Abraham J., Haaparanta T., Palist T., Kirschner M.;
RT "The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer.";
RL Science 242:1053-1056(1988).
RN [2]
RP SEQUENCE OF 95-155 FROM N.A.
RX MEDLINE=88052890; PubMed=3479265;
RA Kimelman D., Kirschner M.;
RT "Synergistic induction of mesoderm by FGF and TGF-beta and the embryo.";
RL Cell 51:869-877(1987).
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
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CC -----
DR EMBL: M18067; AAA49726.1; -
DR PIR: A29618; A29618.
DR PIR: A40117; A40117.
DR HSSP: P09038; 1BFE.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF_1.
DR PRINTS: PR00262; IL1HBGF.
DR ProDom: PD000831; HBGF_FGF_1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 155 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 27 31 HEPARIN (POTENTIAL).
FT BINDING 116 119 HEPARIN (POTENTIAL).
FT CONFLICT 111 111 MISSING (IN REF. 2).
SQ SEQUENCE 155 AA; 17241 MW; 036735C8063142FD CRC64;

Query Match 39.4%; Score 244; DB 1; Length 155;
Best Local Similarity 78.0%; Pred. No. 3.4e-12;
Matches 46; Conservative 3; Mismatches 10; Indels 0; Gaps 0;

QY 56 MAAGSTITLPALEDGSGAFPPGHFKDPKRLCKNGGFFLRHPDGRVDGVREKSDPH 114
Db 1 MAAGSTITLPALEDGSGAFPPGHFKDPKRLCKNGGFFLRHPDGRVDGVREKSDPH 59

RESULT 10
ID FGF1_PIG STANDARD; PRT; 152 AA.
AC P20002;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (Alpha-endothelial cell growth factor) (Fragment).
DE growth factor) (AFGF).
GN FGF1 OR FGF-1.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Euthera; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Heart;
RX MEDLINE=92062117; PubMed=1719973;
RA Schmidt M., Sharma H.S., Schott R.J., Schaper W.;
RT "Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (aFGF) from porcine heart.";
RL Biochem. Biophys. Res. Commun. 180:853-859(1991).
RN [2]
RP SEQUENCE OF 22-41.
RX MEDLINE=89231704; PubMed=2714282;
RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
RA Sharma H.S., Schaper W.;
RT "Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.";
RL Eur. J. Biochem. 181:67-73(1989).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BFGF.
CC -1- SUBUNIT: MONOMER.
CC -----
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
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CC -----
DR EMBL: X60317; CAA42869.1; -
DR PIR: S03954; S03954.
DR HSSP: P05230; 2AXM.
DR InterPro: IPR002209; HBGF_FGF.
DR Pfam: PF00167; FGF_1.
DR ProDom: PD000831; HBGF_FGF_1.
DR SMART: SM00442; FGF_1.
DR PROSITE: PS00247; HBGF_FGF_1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 >152 HEPARIN-BINDING GROWTH FACTOR 1.
FT BINDING 22 >152 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
FT CONFLICT 31 31 C -> S (IN REF. 2).
FT CONFLICT 39 39 R -> Y (IN REF. 2).
FT NON_TER 152 152
SQ SEQUENCE 152 AA; 17103 MW; AE853B0A92F9ABF4 CRC64;

RA Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;
RT "Solution structure of acidic fibroblast growth factor bound to 1,3,
RT 6-naphthalenesulfonate: a minimal model for the anti-tumoral
RT action of suramin and suradistas.";
RL J. Mol. Biol. 281:899-915(1998).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
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CC or send an email to license@isb-sib.ch).
CC
CC -----
DR EMBL; M13361; AAA79245.1; -
DR EMBL; X51943; CAA36206.1; -
DR EMBL; M30492; AAA52446.1; -
DR EMBL; M30490; AAA52446.1; JOINED.
DR EMBL; M30491; AAA52446.1; JOINED.
DR EMBL; M60515; AAA51672.1; -
DR EMBL; M60516; AAA51673.1; -
DR EMBL; M23087; AAA52638.1; -
DR EMBL; M23086; AAA52638.1; -
DR EMBL; S67291; AAB29057.2; -
DR EMBL; X65778; CAA46661.1; -
DR PIR; A23553; A23553.
DR PIR; A24243; A24243.
DR PIR; A24301; A24301.
DR PIR; A24662; A24662.
DR PIR; A24820; A24820.
DR PIR; A26386; A26386.
DR PIR; A33665; A33665.
DR PIR; S18217; S18217.
DR PDB; 2AFG; 15-OCT-95.
DR PDB; 1AXM; 22-APR-98.
DR PDB; 2AXM; 22-APR-98.
DR PDB; 1RML; 11-NOV-98.
DR MIM; 131220; -
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;
KW 3D-structure.
FT PROPEP 1 15
FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
FT MOD_RES 2 2 ACETYLATION.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17460 MW; F586E8BFB09F1580 CRC64;

Query Match 28.2%; Score 174.5; DB 1; Length 155;
Best Local Similarity 59.3%; Pred. No. 5.5e-07;
Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

OY 56 MAAGSITLPLALPEDGGSGAFPFGHFKDKPKRLKLYCKNGGFLRIHPDGRVDGVREKSDPH 114
DB 1 MAEGEITFTALTTEKN--LPPGNYKKPKLLYCSNGHFLRLIPDGTVDGTRDRSDQH 56
RESULT 12

FGFL_MESAU
ID FGFL_MESAU STANDARD; PRT; 155 AA.
AC P34004;
DT 01-FEB-1994 (Rel. 28, Created)
DT 01-FEB-1994 (Rel. 28, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
DE growth factor) (AFGF).
GN FGFL OR FGF-1.
OS Mesocricetus; auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sclurognathi; Muridae; Cricetinae;
OC Mesocricetus.
OX NCBI_TaxID-10036;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE-90270291; PubMed-1693366;
RA Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.;
RT "Characterization of the hamster DDT-1 cell afGF/HBGF-1 gene and cDNA
RT and its modulation by steroids.";
RL J. Cell. Biochem. 43:17-26(1990).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC PIR; A60721; A60721.
DR HSSP; P05230; 1RML.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
KW PROPEP 1 15
FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17403 MW; 41E5EC760E412CC5 CRC64;

Query Match 28.0%; Score 173.5; DB 1; Length 155;
Best Local Similarity 59.3%; Pred. No. 5.5e-07;
Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

OY 56 MAAGSITLPLALPEDGGSGAFPFGHFKDKPKRLKLYCKNGGFLRIHPDGRVDGVREKSDPH 114
DB 1 MAEGEITFTALTTEKN--LPPGNYKKPKLLYCSNGHFLRLIPDGTVDGTRDRSDQH 56
RESULT 13
FGFL_CHICK
ID FGFL_CHICK STANDARD; PRT; 155 AA.
AC P19596;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
DE growth factor) (AFGF) (Alpha-endothelial cell growth factor).
GN FGFL OR FGF-1.
OS Gallus gallus; (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID-9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE-91347925; PubMed-1715259;

RA Schnurch H., Risau W.;
 RT "Differentiating and mature neurons express the acidic fibroblast
 RT growth factor gene during chick neural development.";
 RL Development 111:1143-1154(1991).
 RN [2]
 RP SEQUENCE FROM N.A.
 RA Martin G.R., Han J.K.;
 RL Submitted (JUL-1995) to the EMBL/GenBank/DBJ databases.
 RN [3]
 RP SEQUENCE OF 22-48.
 RX MEDLINE-88296438; PubMed-3402441;
 RA Risau W., Gautschi-Sova P., Boehlen P.;
 RT "Endothelial cell growth factors in embryonic and adult chick brain
 RT are related to human acidic fibroblast growth factor.";
 RL EMO J. 7:959-962(1988).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
 CC THAN DOES BFGF.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC -----
 DR EMBL; S63263; AAB19629.1; -;
 DR EMBL; U31863; AAA80310.1; -;
 DR EMBL; S63261; AAD13942.1; -;
 DR PIR; S02639; S02639.
 DR HSSP; P05230; 2AXM.
 DR InterPro; IPR002209; HBGF_FGF.
 DR InterPro; IPR002348; IL1_HBGF.
 DR Pfam; PF00167; FGF_1.
 DR PRINTS; PR00262; IL1HBGF.
 DR ProDom; PD000831; HBGF_FGF; 1.
 DR SMART; SM00442; FGF; 1.
 DR PROSITE; PS00247; HBGF_FGF; 1.
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 KM PROPEP 1 15
 FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
 FT CHAIN 22 155 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
 FT BINDING 24 28 HEPARIN (POTENTIAL).
 FT BINDING 113 116 HEPARIN (POTENTIAL).
 SQ SEQUENCE 155 AA; 17322 MW; 8EDB70545E2B4365 CRC64;

Query Match 27.9%; Score 172.5; DB 1; Length 155;
 Best Local Similarity 59.3%; Pred. No. 7.7e-07;
 Matches 35; Conservative 5; Mismatches 16; Indels 3; Gaps 1;

OY 56 MAAGSITLPLPEDGSGAAPPFGHEDPKRLLYCKNGFFLRHPDGRVDGVREKSDPH 114
 DB 1 MAEGITFTALTERG--LPLGNVKKPKLLYCSNGHFLRLPDGKVDGTRDRSDQH 56

RESULT 14
 FGFL_MOUSE
 ID FGFL_MOUSE STANDARD; PRT; 155 AA.
 AC P10935;
 DT 01-JUL-1989 (Rel. 11, Created)
 DT 01-JUL-1989 (Rel. 11, Last sequence update)
 DT 01-MAR-2002 (Rel. 41, Last annotation update)
 DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
 DE growth factor) (AFGF).
 GN FGF1 OR FGF-1 OR FGFA.
 OS Mus musculus (Mouse), and

OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OX NCBI_TaxID-10090, 10116;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Rat;
 RX MEDLINE-89240051; PubMed-2470029;
 RA Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
 RT "The nucleotide sequence of rat heparin binding growth factor 1
 RT (HBGF-1).";
 RL Nucleic Acids Res. 17:2867-2867(1989).
 RN [2]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Mouse;
 RX MEDLINE-90201563; PubMed-2318343;
 RA Hebert J.M., Basilico C., Goldfarb M., Haub O., Martin G.R.;
 RT "Isolation of cDNAs encoding four mouse FGF family members and
 RT characterization of their expression patterns during embryogenesis.";
 RL Dev. Biol. 138:454-463(1990).
 RN [3]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Mouse;
 RX MEDLINE-97128312; PubMed-8972905;
 RA Madiai F., Hackshaw K.V., Chiu I.M.;
 RT "Cloning and characterization of the mouse Fgf-1 gene.";
 RL Gene 179:231-236(1996).
 RN [4]
 RP SEQUENCE FROM N.A.
 RC SPECIES=Mouse; STRAIN-BALB/C;
 RX MEDLINE-97094746; PubMed-8939980;
 RA Alam K.Y., Frostholt A., Hackshaw K.V., Evans J.E., Rotter A.,
 RA Chiu I.M.;
 RT "Characterization of the 1B promoter of fibroblast growth factor 1
 RT and its expression in the adult and developing mouse brain.";
 RL J. Biol. Chem. 271:30263-30271(1996).
 CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
 CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
 CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
 CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
 CC -1- SUBUNIT: MONOMER.
 CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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 CC -----
 DR EMBL; X14232; CAA32448.1; -;
 DR EMBL; M30641; AAA37618.1; -;
 DR EMBL; U36459; AAC52969.1; -;
 DR EMBL; U36457; AAC52969.1; JOINED.
 DR EMBL; U36458; AAC52969.1; JOINED.
 DR EMBL; U67610; AAC52907.1; -;
 DR PIR; S04147; S04147.
 DR PIR; D37360; D37360.
 DR HSSP; P05230; 1RML.
 DR MGD; MGI:95515; Fgf1.
 DR InterPro; IPR002209; HBGF_FGF.
 DR InterPro; IPR002348; IL1_HBGF.
 DR Pfam; PF00167; FGF; 1.
 DR PRINTS; PR00262; IL1HBGF.
 DR ProDom; PD000831; HBGF_FGF; 1.
 DR SMART; SM00442; FGF; 1.
 DR PROSITE; PS00247; HBGF_FGF; 1.
 DR Growth factor; Mitogen; Angiogenesis; Heparin-binding.
 KM PROPEP 1 15
 FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
 FT BINDING 24 28 HEPARIN (POTENTIAL).
 FT BINDING 113 116 HEPARIN (POTENTIAL).

SO SEQUENCE 155 AA; 17418 MW; 8880E4FF0BBA161 CRC64;

Query Match 26.4%; Score 163.5; DB 1; Length 155;
Best Local Similarity 57.6%; Pred. No. 3.6e-06;
Matches 34; Conservative 4; Mismatches 18; Indels 3; Gaps 1;

QY 56 MAAGSITLPALEDCGSGAFPPGFKDPRKLYCKNGGFLRIHPDGRVGYREKSDPH 114
DB 1 MAEGITTFALTEFN---LPLGNYKKPKLYCSNGCHFLRLPDGTVDGTRDRSDQH 56

RESULT 15
FGF1_BOVIN STANDARD; PRT; 155 AA.
AC P03968;
DT 23-OCT-1986 (Rel. 02, Created)
DT 01-MAR-1989 (Rel. 10, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (Prostatropin) (Endothelial cell growth factor beta and alpha chains) (Acidic eye-derived growth factor II) (EDGF II).
DE FGF1 OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Cranialata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovinae; Bovinae; Bos.
OC NCBI_Taxid-9913;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-Retina;
RX MEDLINE-89083506; PubMed-3205724;
RA Halley C., Courtois Y., Laurent M.;
RT "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA.";
RL Nucleic Acids Res. 16:10913-10913(1988).
RN [2]
RP SEQUENCE FROM N.A.
RC TISSUE-Retina;
RX MEDLINE-89078619; PubMed-2849564;
RA Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M.;
RT "Characterization of a bovine acidic FGF cDNA clone and its expression in brain and retina.";
RL FEBS Lett. 242:41-46(1988).
RN [3]
RP SEQUENCE OF 2-155.
RX MEDLINE-87016918; PubMed-3532107;
RA Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., MacIay T.;
RT "Structural evidence that endothelial cell growth factor beta is the precursor of both endothelial cell growth factor alpha and acidic fibroblast growth factor.";
RL Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
RN [4]
RP SEQUENCE OF 2-155.
RX MEDLINE-87026586; PubMed-3768327;
RA Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D., Bordoli R.S., McKeenan W.L.;
RT "Complete primary structure of prostatropin, a prostate epithelial cell growth factor.";
RL Biochemistry 25:4988-4993(1986).
RN [5]
RP SEQUENCE OF 16-155.
RX MEDLINE-86070224; PubMed-4071057;
RA Gimenez-Gallego G., Rodney J., Bennett C., Rios-Candelore M., Disalvo J., Thomas K.;
RT "Brain-derived acidic fibroblast growth factor: complete amino acid sequence and homologies.";
RL Science 230:1385-1388(1985).
RN [6]
RP SEQUENCE OF 16-44, AND COMPOSITION.
RX MEDLINE-86055750; PubMed-4065099;
RA Boehlen P., Esch F., Baird A., Gospodarowicz D.;
RT "Acidic fibroblast growth factor (FGF) from bovine brain:

RT amino-terminal sequence and comparison with basic FGF.";
RL EMBO J. 4:1951-1956(1985).
RN [7]
RP SEQUENCE OF 16-56 FROM N.A.
RX MEDLINE-86261806; PubMed-2425435;
RA Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;
RT "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";
RL Science 233:545-548(1986).
RN [8]
RP SEQUENCE OF 16-45.
RX MEDLINE-89231704; PubMed-2714282;
RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N., Sharma H.S., Schaper W.;
RT "Isolation of heparin-binding growth factors from bovine, porcine and canine hearts.";
RL Eur. J. Biochem. 181:67-73(1989).
RN [9]
RP SEQUENCE OF 1-18 FROM N.A.
RA Philippe J.M., Renaud F., Desset S., Laurent M.;
RL Submitted (JUL-1992) to the EMBL/GenBank/DBJ databases.
RN [10]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE-91095983; PubMed-1702556;
RA Zhu X., Komiya H., Chirino A., Faham S., Fox G.M., Arakawa T., Hsu B.T., Rees D.C.;
RT "Three-dimensional structures of acidic and basic fibroblast growth factors.";
RL Science 251:90-93(1991).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BEGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC EMBL: M13439; AAA30516.1; -
CC EMBL: X13221; CAA31610.1; -
CC EMBL: X14032; CAA32192.1; -
CC EMBL: M35608; AAA30517.1; -
CC EMBL: X66446; CAA47063.1; -
CC EMBL: M97660; AAA30563.1; -
CC EMBL: M97661; AAA30564.1; -
CC PIR: A01385; GKBOA.
CC PIR: A25043; A25043.
CC PIR: B25043; B25043.
CC PIR: C25043; C25043.
CC PIR: A24477; A24477.
CC PIR: B24663; B24663.
CC PIR: S02102; S02102.
CC PDB: 1BAR; 31-OCT-93.
CC PDB: 1AFC; 31-OCT-93.
CC InterPro: IPR002209; HBGF_FGF.
CC InterPro: IPR002348; ILL_HBGF.
CC Pfam: PF00167; FGF_1.
CC PRINTS: PR00262; ILLHBGF.
CC ProDom: PD000831; HBGF_FGF; 1.
CC SMART: SM00442; FGF; 1.
CC PROSITE: PS00247; HBGF_FGF; 1.
CC Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation; 3D-structure.
FT PROPEP 1 15

FT	CHAIN	2	155	ENDOTHELIAL CELL GROWTH FACTOR BETA.
FT	CHAIN	16	155	HEPARIN-BINDING GROWTH FACTOR 1.
FT	CHAIN	22	155	ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
FT	MOD_RES	2	2	ACETYLATION.
FT	BINDING	24	28	HEPARIN (POTENTIAL).
FT	BINDING	113	116	HEPARIN (POTENTIAL).
FT	STRAND	27	31	
FT	TURN	32	34	
FT	STRAND	37	40	
FT	TURN	42	43	
FT	STRAND	46	49	
FT	HELIX	55	57	
FT	STRAND	59	61	
FT	STRAND	69	69	
FT	STRAND	71	73	
FT	STRAND	79	82	
FT	TURN	84	85	
FT	STRAND	87	91	
FT	HELIX	96	98	
FT	STRAND	100	100	
FT	STRAND	103	104	
FT	TURN	106	107	
FT	STRAND	110	111	
FT	STRAND	113	114	
FT	TURN	116	121	
FT	STRAND	123	123	
FT	STRAND	126	126	
FT	TURN	128	129	
FT	STRAND	132	132	
FT	STRAND	134	134	
FT	HELIX	135	137	
FT	TURN	140	141	
FT	TURN	144	145	
FT	STRAND	147	150	
SO	SEQUENCE	155 AA;	17493 MW;	P636641P189F9BFD CRC64;

Query Match 25.98; Score 160.5; DB 1; Length 155;
Best Local Similarity 54.28; Pred. No. 6.1e-06;
Matches 32; Conservative 6; Mismatches 18; Indels 3; Gaps 1;

OY	56	MAAGSITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFPLRIHPDGRVDGVREKSDPH	114
DB	1	MAEGETTTFALTAKFN--LPLGNTKKPKLLYCSNGGYFLRLPLPDGTVDGTRDRSDOH	56

Search completed: June 2, 2002, 18:05:15
Job time: 243 sec

GenCore version 4.5
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OM protein - protein search, using SW model

Run on: June 2, 2002, 18:02:18 ; Search time 35.96 Seconds
(without alignments)
304.621 Million cell updates/sec

Title: US-09-642-277A-2

Perfect score: 619
Sequence: 1 LGDRGRGRLPGRLGGRGR.....FLRIHPDGRVDGVREKSDPH 114

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : PIR_71:*
1: p1r1:*
2: p1r2:*
3: p1r3:*
4: p1r4:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	617	99.7	210	2	A32398	basic fibroblast g
2	352.5	56.9	189	2	A48834	basic fibroblast g
3	334	54.0	157	1	GKBOB	basic fibroblast g
4	309.5	50.0	154	2	A31674	basic fibroblast g
5	297.5	48.1	164	2	S31622	basic fibroblast g
6	294.5	47.6	154	2	C37360	basic fibroblast g
7	287	46.4	137	2	I46711	basic fibroblast g
8	281	45.4	146	1	S00185	basic fibroblast g
9	244	39.4	155	1	A40117	basic fibroblast g
10	223	36.0	125	2	A32484	basic fibroblast g
11	174.5	28.2	60	2	JH0708	basic fibroblast g
12	174.5	28.2	152	2	JH0476	acidic fibroblast
13	174.5	28.2	155	1	A33665	acidic fibroblast
14	173.5	28.0	155	1	A60721	acidic fibroblast
15	172.5	27.9	155	2	A60130	acidic fibroblast
16	165.5	26.7	155	2	JW0055	acidic fibroblast
17	163.5	26.4	155	2	S04147	acidic fibroblast
18	163.5	26.4	155	2	D37360	acidic fibroblast
19	160.5	25.9	155	1	GKBOA	acidic fibroblast
20	121.5	19.6	1733	1	B45344	probable nuclear a
21	119	19.2	1168	1	MMAXIC	myosin heavy chain
22	118.5	19.1	641	1	OQBE31	nuclear antigen EB
23	110	17.8	1958	2	B40505	hypothetical prote
24	107.5	17.4	809	2	A34404	oxysterol-binding
25	107.5	17.4	1215	2	T32734	myosin-IIA - Acanth
26	106.5	17.2	946	2	F88196	protein ZK1127.9 f
27	105	17.0	825	2	JC4163	DNA-binding protei
28	104	16.8	194	2	I50710	fibroblast growth
29	104	16.8	243	2	A96744	hypothetical prote

30	104	16.8	320	2	T09555	fibrillarlin - Arab
31	103.5	16.7	305	2	T20906	hypothetical prote
32	103.5	16.7	316	2	T19288	hypothetical prote
33	103.5	16.7	369	2	F96788	protein T4012.22 f
34	103	16.6	203	2	JC4871	phospholipase C (E
35	102.5	16.6	1042	1	CGCH15	collagen alpha 1(I
36	102	16.5	121	2	S68145	fibroblast growth
37	102	16.5	266	2	S68144	fibroblast growth
38	102	16.5	807	2	A34581	oxysterol-binding
39	102	16.5	1014	2	H86438	protein T19E23.7 f
40	101.5	16.4	316	2	T19291	hypothetical prote
41	101.5	16.4	529	2	T45134	hypothetical prote
42	100.5	16.2	373	2	A47234	homeobox protein H
43	100	16.2	185	2	T49890	glycine-rich prote
44	100	16.2	297	2	T27525	hypothetical prote
45	100	16.2	1497	2	I49607	procollagen type V

ALIGNMENTS

RESULT 1
A32398
basic fibroblast growth factor precursor, 22.5K form - human
N:Alternate names: bFGF; fibroblast growth factor 2; prostatic growth factor; prosta
N:Contains: basic fibroblast growth factor, 18K form
C:Species: Homo sapiens (man)
C>Date: 31-Jul-1989 #sequence_revision 31-Dec-1993 #text_change 21-Jul-2000
C:Accession: A32398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824
R:Prats, H.; Kagnad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Liauzun, P.; Cha
Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989
A:Title: High molecular mass forms of basic fibroblast growth factor are initiated
A:Reference number: A32398; MUID:89184522
A:Accession: A32398
A:Molecule type: mRNA
A:Residues: 1-210 <PRA>
A:Cross-references: GB:J04513; MID:g183083; PIDN:AAA52531.1; PID:g459811
R:Shibata, F.; Baird, A.; Florkiewicz, R.Z.
Growth Factors 4, 277-287, 1991
A:Title: Functional characterization of the human basic fibroblast growth factor ge
A:Reference number: A61537; MUID:92110035
A:Accession: A61537
A:Molecule type: DNA
A:Residues: 1-114 <SHI>
A:Note: authors translated the codon GGA for residue 47 as Ala
R:Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.
FEBS Lett. 213, 189-194, 1987
A:Title: Cloning and expression of cDNA encoding human basic fibroblast growth facto
A:Reference number: A26642; MUID:87162468
A:Accession: A26642
A:Molecule type: mRNA
A:Residues: 56-210 <KUR>
A:Cross-references: GB:M27968; MID:g182562; PIDN:AAA52448.1; PID:g182563
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.
Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986
A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organiz
A:Reference number: A90924; MUID:87217066
A:Accession: B32878
A:Molecule type: mRNA
A:Residues: 56-210 <ABR>
A:Note: the authors translated the codon GAA for residue 108 as Gly
R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, L
EMBO J. 5, 2523-2528, 1986
A:Title: Human basic fibroblast growth factor: nucleotide sequence and genomic organ
A:Reference number: S00297; MUID:87053817
A:Accession: S00297
A>Status: not compared with conceptual translation
A:Molecule type: DNA
A:Residues: 1-155 <AB2>
A:Note: the authors translated the codon GAA for residue 108 as Gly
R:Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.
Jpn. J. Cancer Res. 82, 1263-1270, 1991
A:Title: Characterization of high-molecular-mass forms of basic fibroblast growth fa

rcinogenesis.

A:Reference number: A54316; MUID:92091228
 A:Accession: A54316
 A:Molecule type: protein
 A:Residues: 'XX', 86-88, 'X', 90-91, 'X', 93-95 <SH3>
 A:Experimental source: C-Li21 hepatocellular carcinoma cell line
 A:Note: sequence extracted from NCBI backbone (NCBIF:71595)
 A:Accession: B54316
 A:Molecule type: protein
 A:Residues: 'xxx', 19, 'X', 21-29 <SH2>
 A:Note: sequence extracted from NCBI backbone (NCBIF:71594)
 R:Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farris, J.; Cousens, L.C.; Barr, P.J.; Baird, J. Cell Biol. 109, 3105-3114, 1989
 A:Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylation
 A:Reference number: A33624; MUID:90078343
 A:Accession: A33624
 A:Status: preliminary
 A:Molecule type: protein
 A:Residues: 57-210 <FEI>
 R:Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K. Biochem. Biophys. Res. Commun. 142, 702-709, 1987
 A:Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isolate
 A:Reference number: A25824; MUID:87156686
 A:Accession: A25824
 A:Molecule type: protein
 A:Residues: 57-77 <STO>
 A:Experimental source: prostate
 R:Jimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A. Biochem. Biophys. Res. Commun. 135, 541-548, 1986
 A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal
 A:Reference number: A90122; MUID:86186784
 A:Accession: B24243
 A:Molecule type: protein
 A:Residues: 65-102, 'X', 104-105 <GIM>
 A:Experimental source: brain
 R:Gautschi, P.; Frater-Schroder, M.; Bohlen, P. FEBS Lett. 204, 203-207, 1986
 A:Title: Partial molecular characterization of endothelial cell mitogens from human brain
 A:Reference number: A91364; MUID:86275260
 A:Accession: B24301
 A:Molecule type: protein
 A:Residues: 65-88, 'X', 90-98, 'X', 100 <GAU>
 R:Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B. Biochem. Biophys. Res. Commun. 144, 543-550, 1987
 A:Title: A form of human basic fibroblast growth factor with an extended amino terminus
 A:Reference number: S42242; MUID:87213238
 A:Accession: S42242
 A:Status: preliminary
 A:Molecule type: mRNA
 A:Residues: 54-210 <SOM>
 A:Cross-references: EMBL:M17599; MID:9183086; PIDN:AA52534.1; PID:9183087
 R:Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobey, T.; Wetmore, D. Biochemistry 33, 10229-10248, 1994
 A:Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor
 A:Reference number: A55784; MUID:94347757
 A:Accession: B55784
 A:Molecule type: protein
 A:Residues: 54-71 <PAN>
 R:Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J. Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992
 A:Title: Reverse transcription with nested polymerase chain reaction shows expression of
 A:Reference number: I52267; MUID:93038590
 A:Accession: I52267
 A:Status: preliminary; translated from GB/EMBL/DBJ
 A:Molecule type: mRNA
 A:Residues: 95-182 <RES>
 A:Cross-references: GB:S47380; MID:9256535; PIDN:AA13853.1; PID:94261553
 A:Experimental source: granulosa cells
 R:Patry, V.; Bugler, B.; Amarit, F.; Prome, J.C.; Prats, H. FEBS Lett. 349, 23-28, 1994
 A:Title: Purification and characterization of the 210-amino acid recombinant basic fibro
 A:Reference number: S46253; MUID:94320639

A:Accession: S46253
 A:Molecule type: protein
 A:Residues: 39-53; 65-88 <PAT>
 A:Note: recombinant gene expressed in Escherichia coli
 A:Gene: GDB:FGF2; FGFB
 A:Cross-references: GDB:119910; OMIM:134920
 A:Map position: 4q25-4q27
 A:Start codon: CTG
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; mt
 F:1-210/Product: basic fibroblast growth factor, 22.5K form #status predicted <MA2>
 F:65-210/Product: basic fibroblast growth factor, 18K form #status predicted <MAT>
 F:82-86/Region: heparin binding #status predicted
 F:171-174/Region: heparin binding #status predicted

Query Match 99.7%; Score 617; DB 2; Length 210;
 Best Local Similarity 99.1%; Pred. No. 2.1e-40;
 Matches 113; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 LGDRGRALPGRLGGRGRAPRVGGRGRGTAPRAPARAGSRPGPACTMAGS 60
 : |||||
 Db 1 MGDRGRALPGRLGGRGRAPRVGGRGRGTAPRAPARAGSRPGPACTMAGS 60

QY 61 ITLPALPEDGSGAFPFGHFKDPRRLCKNGGFLRIHPDGRVDGVRKSDPH 114
 : |||||
 Db 61 ITLPALPEDGSGAFPFGHFKDPRRLCKNGGFLRIHPDGRVDGVRKSDPH 114

RESULT 2
 A48834
 basic fibroblast growth factor - chicken
 C:Species: Gallus gallus (chicken)
 C>Date: 01-Dec-1993 #sequence_revision 18-Nov-1994 #text_change 16-Jul-1999
 R:Bojja, A.Z.; Meijers, C.; Zeller, R. Dev. Biol. 157, 110-118, 1993
 A:Title: Expression of alternatively spliced bFGF first coding exons and antisense m
 A:Reference number: A48834; MUID:93246053
 A:Accession: A48834
 A:Status: preliminary
 A:Molecule type: nucleic acid
 A:Residues: 1-189 <BOR>
 A:Experimental source: embryo
 A:Note: sequence extracted from NCBI backbone (NCBIN:131000, NCBIF:131001)
 R:Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T. Development 109, 387-393, 1990
 A:Title: Fibroblast growth factor during mesoderm induction in the early chick embryo
 A:Reference number: S23636; MUID:90382254
 A:Accession: S23636
 A:Status: preliminary
 A:Molecule type: DNA
 A:Residues: 95-128 <MIT>
 A:Cross-references: EMBL:X56804; MID:962855; PIDN:CAA40139.1; PID:962856
 C:Superfamily: fibroblast growth factor

Query Match 56.9%; Score 352.5; DB 2; Length 189;
 Best Local Similarity 76.9%; Pred. No. 2.9e-20;
 Matches 70; Conservative 2; Mismatches 12; Indels 7; Gaps 2;

QY 31 GGRGTAPRAPARAG--SRPGPACTM-----AGSITLPALPEDGSGAFPFGHFKD 83
 : |||||
 Db 3 GGRGTAPRALAAAGGPGRRKAGARRMAAGAAGSITLPALPDGGGAFPFGHFKD 62

QY 84 PKRLCKNGGFFLRHPDGRVDGVRKSDPH 114
 : |||||
 Db 63 PKRLCKNGGFFLRHPDGRVDGVRKSDPH 93

RESULT 3
 GKBOB

basic fibroblast growth factor precursor - bovine (fragment)
 N:Alternate names: bFGF; kidney-derived growth factor; prostatrophin
 C:Species: Bos primigenius taurus (cattle)
 C>Date: 13-Aug-1986 #sequence_revision 02-Jun-1995 #text_change 24-Nov-1999
 C:Accession: A24663; A32878; A33784; A61550; A61551; A60310; A61094; A01386; A60316; A22
 R:Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.; Goss
 Science 233, 545-548, 1986
 A:Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fi
 A:Reference number: A94290; MUID:86261806
 A:Accession: A24663
 A:Molecule type: mRNA
 A:Residues: 3-157 <ABR>
 A:Cross-references: GB:M13440; NID:g163049; PIDN:AAA30518.1; PID:g163050
 A:Experimental source: pituitary gland
 R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.
 Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986
 A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organization
 A:Reference number: A90924; MUID:87217066
 A:Accession: A32878
 A:Molecule type: mRNA
 A:Residues: 3-157 <AB2>
 R:Milner, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.
 Biochem Biophys. Res. Commun. 165, 1096-1103, 1989
 A:Title: A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: purifica
 A:Reference number: A33784; MUID:90121211
 A:Accession: A33784
 A:Molecule type: protein
 A:Residues: 1-14 <MIT>
 A:Note: demonstration of a possible alternative initiator or splice junction
 R:Bercolini, J.; Hearn, M.T.W.
 Mol. Cell. Endocrinol. 51, 187-199, 1987
 A:Title: Isolation, characterization and tissue localisation of an N-terminal-truncated
 A:Reference number: A61550; MUID:87247652
 A:Accession: A61550
 A:Molecule type: protein
 A:Residues: 16-35 <BER>
 R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
 Mol. Cell. Endocrinol. 49, 189-194, 1987
 A:Title: Isolation and partial characterization of basic fibroblast growth factor from b
 A:Reference number: A61551; MUID:87162856
 A:Accession: A61551
 A:Molecule type: protein
 A:Residues: 27-35, 'X', 37-41 <UE3>
 A:Experimental source: testes
 A:Note: this form appears to be identical to the renal form
 R:Ueno, N.; Baird, A.; Esch, F.; Shimazaki, S.; Ling, N.; Guillemin, R.
 Regul. Pept. 16, 135-145, 1986
 A:Title: Purification and partial characterization of a mitogenic factor from bovine liv
 A:Reference number: A60310; MUID:87119165
 A:Accession: A60310
 A:Molecule type: protein
 A:Residues: 23-35, 'X', 37-42 <UEN>
 A:Experimental source: liver
 R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Guillemin, R.
 Biochem. Biophys. Res. Commun. 138, 580-588, 1986
 A:Title: Isolation of an amino terminal extended form of basic fibroblast growth factor.
 A:Reference number: A24819; MUID:86295737
 A:Contents: annotation
 A:Note: the amino end of this form was blocked; the peptide composition matched what was
 R:Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlen, P.
 Endocrinology 118, 82-90, 1986
 A:Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical
 A:Reference number: A61094; MUID:86081530
 A:Accession: A61094
 A:Molecule type: protein
 A:Residues: 12-25, 27-35, 'X', 37-40 <GOS>
 A:Experimental source: adrenal gland
 R:Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodar
 Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985
 A:Title: Primary structure of bovine pituitary basic fibroblast growth factor (bFGF) and
 A:Reference number: A01386; MUID:86016731
 A:Accession: A01386
 A:Molecule type: protein

A:Residues: 12-157 <ESC>
 A:Experimental source: pituitary gland
 R:Baird, A.; Esch, F.; Bohlen, P.; Ling, N.; Gospodarowicz, D.
 Regul. Pept. 12, 201-213, 1985
 A:Title: Isolation and partial characterization of an endothelial cell growth facto
 A:Reference number: A60316; MUID:86095426
 A:Accession: A60316
 A:Molecule type: protein
 A:Residues: 27-35, 'X', 37-43 <BAI>
 A:Experimental source: kidney
 R:Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
 Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984
 A:Title: Isolation and partial molecular characterization of pituitary fibroblast g
 A:Reference number: A22054; MUID:84298139
 A:Accession: A22054
 A:Molecule type: protein
 A:Residues: 12-26 <BOH>
 C:Comment: The acidic and basic fibroblast growth factors are the major endothelial
 cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulat
 C:Comment: This protein binds heparin more strongly than does aFGF.
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; h
 F:1-157/Product: basic fibroblast growth factor, uterine form #status predicted <MA
 F:4-157/Product: basic fibroblast growth factor, pituitary gamma form #status exper
 F:12-157/Product: basic fibroblast growth factor, pituitary alpha form #status exper
 F:16-157/Product: basic fibroblast growth factor, pituitary short form #status pred
 F:23-157/Product: basic fibroblast growth factor, hepatic form #status experimental
 F:27-157/Product: basic fibroblast growth factor, renal form #status experimental
 F:29-33, 118-121/Region: heparin binding #status predicted
 F:4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probab

Query Match 54.08; Score 334; DB 1; Length 157;
 Best Local Similarity 98.48; Pred. No. 6, 3e-19;
 Matches 60; Conservative 0; Mismatches 1; Indels 0; Gaps 0;
 QY 54 GTMAAGSTTLPALPEDGSGAAPPFGHFKDKPKRLCKNGGFLRIHPDGRVDGVRKSDP 113
 Db 1 GAMAAGSTTLPALPEDGSGAAPPFGHFKDKPKRLCKNGGFLRIHPDGRVDGVRKSDP 60
 QY 114 H 114
 Db 61 H 61

RESULT 4
 A31674
 basic fibroblast growth factor precursor - rat
 N:Alternate names: bFGF
 C:Species: Rattus norvegicus (Norway rat)
 C>Date: 21-May-1990 #sequence_revision 21-May-1990 #text_change 16-Jul-1999
 C:Accession: A31674; S00876; S24309
 R:Shimazaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird,
 Biochem. Biophys. Res. Commun. 157, 256-263, 1988
 A:Title: Complementary DNA cloning and sequencing of rat ovarian basic fibroblast g
 A:Reference number: A31674; MUID:89061721
 A:Accession: A31674
 A:Molecule type: mRNA
 A:Residues: 1-154 <SHI>
 A:Cross-references: GB:M22427; NID:g204285; PIDN:AAA41210.1; PID:g204286
 R:Kurokawa, T.; Seno, M.; Igarashi, K.
 Nucleic Acids Res. 16, 5201, 1988
 A:Title: Nucleotide sequence of rat basic fibroblast growth factor cDNA.
 A:Reference number: S00876; MUID:88262516
 A:Accession: S00876
 A:Molecule type: mRNA
 A:Residues: 1-154 <KUR>
 A:Cross-references: EMBL:X07285; NID:g56203; PIDN:CAA30265.1; PID:g56204
 R:El-Husselini, A.E.D.; Paterson, J.A.; Myal, Y.; Shiu, R.P.C.
 Biochem. Biophys. Acta 1131, 314-316, 1992
 A:Title: PCR detection of the rat brain basic fibroblast growth factor (bFGF) mRNA
 A:Reference number: S24309; MUID:92329546
 A:Accession: S24309

A:Status: preliminary; translation not shown

A:Molecule type: mRNA

A:Residues: 35-154 <ELH>

A:Cross-references: EMBL:X61697; NID:g56143; PIDN:CAA43863.1; PID:g56144

C:Superfamily: fibroblast growth factor

C:Keywords: growth factor

F:1-9/Domain: signal sequence #status predicted <SIG>

F:10-154/Product: basic fibroblast growth factor #status predicted <MAT>

Query Match

Best Local Similarity 50.0%; Score 309.5; DB 2; Length 154;
Matches 57; Conservative 1; Mismatches 0; Indels 1; Gaps 1;

OY 56 MAAGSITLTPALPEDGGGAFPPGPHFKDPKRLCKNGGFLLRIHPDGRVGVREKSDPH 114

Db 1 MAAGSITLTPALPEDGG-GAFPPGPHFKDPKRLCKNGGFLLRIHPDGRVGVREKSDPH 58

RESULT 5

S31622

basic fibroblast growth factor - short-tailed opossum (Monodelphis domestica) (fragment)

C:Species: Monodelphis domestica

C:Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 12-Apr-1995

C:Accession: S31622

R:Kuswilt, D.F.; Sabourin, C.L.K.; Budge, C.L.; Ley, R.D.

submitted to the EMBL Data Library, September 1992

A:Description: Characterization of cDNA encoding basic fibroblast growth factor of the m

A:Reference number: S31622

A:Accession: S31622

A:Status: preliminary

A:Molecule type: DNA

A:Residues: 1-164 <KUS>

A:Cross-references: EMBL:Z15154

C:Superfamily: fibroblast growth factor

Query Match

Best Local Similarity 48.1%; Score 297.5; DB 2; Length 164;
Matches 58; Conservative 3; Mismatches 5; Indels 5; Gaps 2;

OY 45 ARGSRPGAGTMAAGSITLTPALPED-GGSGAFPPGPHFKDPKRLCKNGGFLLRIHPDGR 103

Db 2 SRGSSVG----MAAGSITLTPALSGGGGGAFFPGHFKDPKRLCKNGGFLLRIHPDGR 57

OY 104 VDGVRKSDPH 114

Db 58 VDGIRKSDPN 68

RESULT 6

C37360

basic fibroblast growth factor - mouse

C:Species: Mus musculus (house mouse)

C:Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999

C:Accession: C37360

R:Hebert, J.M.; Basilico, C.; Goldfarb, M.; Haub, O.; Martin, G.R.

Dev. Biol. 138, 454-463, 1990

A:Title: Isolation of cDNAs encoding four mouse FGF family members and characterization

A:Reference number: A37360; MUID:90201563

A:Accession: C37360

A:Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-154 <HEB>

A:Cross-references: GB:M30644; NID:g193296; PIDN:AAA37621.1; PID:g309239

C:Superfamily: fibroblast growth factor

Query Match

Best Local Similarity 47.6%; Score 294.5; DB 2; Length 154;
Matches 54; Conservative 2; Mismatches 2; Indels 1; Gaps 1;

OY 56 MAAGSITLTPALPEDGGGAFPPGPHFKDPKRLCKNGGFLLRIHPDGRVGVREKSDPH 114

Db 1 MAAGSITLTPALPEDGGA-AFPPGPHFKDPKRLCKNGGFLLRIHPDGRVGVREKSDPH 58

RESULT 7

I46711

fibroblast growth factor - rabbit (fragment)

C:Species: Oryctolagus cuniculus (domestic rabbit)

C:Date: 14-Feb-1997 #sequence_revision 14-Feb-1997 #text_change 16-Jul-1999

C:Accession: I46711

R:Winkles, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.F.; Liau, G.

Am. J. Pathol. 143, 518-527, 1993

A:Title: Elevated expression of basic fibroblast growth factor in an immortalized r

A:Reference number: I46711; MUID:93343209

A:Accession: I46711

A:Status: preliminary; translated from GB/EMBL/DBJ

A:Molecule type: mRNA

A:Residues: 1-137 <WIN>

A:Cross-references: GB:L12034; NID:g165014; PIDN:AAA31248.1; PID:g165015

C:Superfamily: fibroblast growth factor

Query Match

Best Local Similarity 46.4%; Score 287; DB 2; Length 137;
Matches 50; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 65 PALPEDGSGAFPPGPHFKDPKRLCKNGGFLLRIHPDGRVGVREKSDPH 114

Db 1 PALPEDGSGAFPPGPHFKDPKRLCKNGGFLLRIHPDGRVGVREKSDPH 50

RESULT 8

S00185

basic fibroblast growth factor - sheep

N:Alternate names: prostatropin

C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)

C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999

C:Accession: S00185

R:Simpson, R.J.; Moritz, R.L.; Lloyd, C.J.; Fabrl, L.J.; Nice, E.C.; Rubira, M.R.; F

FEBS Lett. 224, 128-132, 1987

A:Title: Primary structure of ovine pituitary basic fibroblast growth factor.

A:Reference number: S00185; MUID:88055577

A:Accession: S00185

A:Molecule type: protein

A:Residues: 1-146 <SIM>

C:Superfamily: fibroblast growth factor

C:Keywords: growth factor; heparin binding; mitogen

F:18-22/Region: heparin binding #status predicted

F:107-110/Region: heparin binding #status predicted

Query Match

Best Local Similarity 45.4%; Score 281; DB 1; Length 146;
Matches 49; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 65 PALPEDGSGAFPPGPHFKDPKRLCKNGGFLLRIHPDGRVGVREKSDPH 114

Db 1 PALPEDGSSAAPPGPHFKDPKRLCKNGGFLLRIHPDGRVGVREKSDPH 50

RESULT 9

A40117

basic fibroblast growth factor - African clawed frog

C:Species: Xenopus laevis (African clawed frog)

C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999

C:Accession: A40117; A29618

R:Kimelman, D.; Abraham, J.A.; Haaparanta, T.; Palisi, T.M.; Kirschner, M.W.

Science 242, 1053-1056, 1988

A:Title: The presence of fibroblast growth factor in the frog egg: its role as a nat

A:Reference number: A40117; MUID:89058621

A:Accession: A40117

A:Status: preliminary

A:Molecule type: mRNA

A:Residues: 1-155 <KIM>
A:Cross-references: GB:M18067; NID:g214177; PIDN:AAA49726.1; PID:g214178; GB:M21092
R:Kimmelman, D.; Kirschner, M.
Cell 51, 869-877, 1987
A:Title: Synergistic induction of mesoderm by FGF and TGF-beta and the identification of
A:Reference number: A29618; MUID:88052890
A:Accession: A29618
A:Molecule type: mRNA
A:Residues: 95-110,112-155 <K12>
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor

Query Match 39.4%; Score 244; DB 1; Length 155;
Best Local Similarity 78.0%; Pred. No. 4.6e-12;
Matches 46; Conservative 3; Mismatches 10; Indels 0; Gaps 0;

QY 56 MAAGSITTLPALPEDGSGAAPPFGHFKDPKRLCKNGGFRLRHPDGRVDGVRKSDPH 114
|||||
Db 1 MAAGSITTLPESEDEGNTPFSPGSKDPKRLCKNGGFRLRINSRVDGSRDSDSH 59

RESULT 10
A32484

basic fibroblast growth factor precursor, 25K - guinea pig (fragments)
C:Species: Cavia porcellus (guinea pig)
C:Date: 20-Oct-1989 #sequence_revision 20-Oct-1989 #text_change 15-Jun-1996
C:Accession: A32484
R:Sommer, A.; Moscatelli, D.; Rifkin, D.B.
Biochem. Biophys. Res. Commun. 160, 1267-1274, 1989
A:Title: An amino-terminally extended and post-translationally modified form of a 25kD
A:Reference number: A32484; MUID:89273588
A:Accession: A32484
A:Status: preliminary; nucleic acid sequence not shown; not compared with conceptual tra
A:Molecule type: mRNA
A:Residues: 1-125 <SOM>
C:Superfamily: fibroblast growth factor

Query Match 36.0%; Score 223; DB 2; Length 125;
Best Local Similarity 65.3%; Pred. No. 1.5e-10;
Matches 47; Conservative 2; Mismatches 9; Indels 14; Gaps 2;

QY 27 VCGRGRCGTAPRAPAARGSRPGAGTMAAGSITTLPALPEDGSGAAPPFGHFKDPKR 86
|||||
Db 1 VCGRGRCGTAA-----AARREGCAMAAGSITTLPALPEDGSGAAPPFGHFKDP-- 50

QY 87 LYCKNGFFLR 98
|||||
Db 51 ----NGGFRL 58

RESULT 11

JH0708
fibroblast growth factor 1 precursor, splice form aFGF - human
N:Alternate names: acidic fibroblast growth factor aFGF
C:Species: Homo sapiens (man)
C:Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
C:Accession: JH0708
R:Yu, Y.L.; Kha, H.; Golden, J.A.; Mischel, A.A.J.; Goetzl, E.J.; Turck, C.W.
J. Exp. Med. 175, 1073-1080, 1992
A:Title: An acidic fibroblast growth factor protein generated by alternate splicing acts
A:Reference number: JH0707; MUID:92202857
A:Accession: JH0708
A:Molecule type: mRNA
A:Residues: 1-60 <YU>
A:Cross-references: GB:X65779; NID:g396165; PIDN:CAA46662.1; PID:g396166
C:Genetics:
A:Gene: GDB:FGF1; FGFA
A:Cross-references: GDB:119909; OMIM:131220
A:Map position: 5q31.3-5q33.2
C:Superfamily: fibroblast growth factor
C:Keywords: alternative splicing; growth factor

Query Match 28.2%; Score 174.5; DB 2; Length 60;
Best Local Similarity 59.3%; Pred. No. 4.2e-07;
Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

QY 56 MAAGSITTLPALPEDGSGAAPPFGHFKDPKRLCKNGGFRLRHPDGRVDGVRKSDPH 114
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Db 1 MAEGEITTFALTKEFN--LPPGNKKPKRLCKNGGFRLRHPDGRVDGVRKSDPH 56

RESULT 12

JH0476
acidic fibroblast growth factor - pig (fragment)
C:Species: Sus scrofa domestica (domestic pig)
C:Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_change 16-Jul-1999
C:Accession: JH0476; S20072
R:Schmidt, M.; Sharma, H.S.; Schott, R.J.; Schaper, W.
Biochem. Biophys. Res. Commun. 180, 853-859, 1991
A:Title: Amplification and sequencing of mRNA encoding acidic fibroblast growth fac
A:Reference number: JH0476; MUID:92062117
A:Accession: JH0476
A:Molecule type: mRNA
A:Residues: 1-152 <SCH>
A:Cross-references: EMBL:X60317; NID:g1873; PIDN:CAA42869.1; PID:g1874
A:Experimental source: heart
A:Note: the hydrophobic core residues are packed around the internal symmetry axis
C:Comment: This protein belongs to the fibroblast growth factor family.
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor; heparin binding
F:22-28/Region: nuclear location signal
F:133/Binding site: heparin (Lys) #status predicted

Query Match 28.2%; Score 174.5; DB 2; Length 152;
Best Local Similarity 59.3%; Pred. No. 9.1e-07;
Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

QY 56 MAAGSITTLPALPEDGSGAAPPFGHFKDPKRLCKNGGFRLRHPDGRVDGVRKSDPH 114
|||||
Db 1 MAEGEITTFALTKEFN--LPPGNKKPKRLCKNGGFRLRHPDGRVDGVRKSDPH 56

RESULT 13

A33665
acidic fibroblast growth factor 1 precursor [validated] - human
N:Alternate names: beta-ECGF; endothelial cell growth factor beta; heparin-binding
C:Species: Homo sapiens (man)
C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 08-Dec-2000
C:Accession: A33665; A32316; S18217; A43804; A24662; JH0707; S35535; S35536; I39413;
R:Merz, A.; Fischer, E.; Graves, D.; Tumolo, A.; Miller, J.; Gospodarowicz, D.; Al
Biochem. Biophys. Res. Commun. 164, 1121-1129, 1989
A:Title: Structural analysis of the gene for human acidic fibroblast growth factor.
A:Reference number: A33665; MUID:90073637
A:Accession: A33665
A:Molecule type: DNA
A:Residues: 1-155 <MER>
A:Cross-references: GB:M30491
R:Wang, W.P.; Lehtoma, K.; Varban, M.L.; Krishnan, I.; Chiu, I.M.
Mol. Cell. Biol. 9, 2387-2395, 1989
A:Title: Cloning of the gene coding for human class I heparin-binding growth factor
A:Reference number: A32316; MUID:89343957
A:Accession: A32316
A:Molecule type: DNA
A:Residues: 1-155 <WAN>
A:Cross-references: GB:M23087; NID:g183875; PIDN:AAA52638.1; PID:g386768
R:Wang, W.P.; Quick, D.; Balcerzak, S.P.; Needleman, S.W.; Chiu, I.M.
Oncogene 6, 1521-1529, 1991
A:Title: Cloning and sequence analysis of the human acidic fibroblast growth factor
A:Reference number: S18217; MUID:92019819
A:Accession: S18217
A:Molecule type: DNA
A:Residues: 1-155 <WA2>

A:Cross-references: EMBL:M23086
R:Chiu, I.M.; Wang, W.P.; Lehtoma, K.
Oncogene 5, 755-762, 1990
A:Title: Alternative splicing generates two forms of mRNA coding for human heparin-binding
A:Reference number: A43804; MUID:90265618
A:Accession: A43804
A:Molecule type: mRNA
A:Residues: 1-155 <CHI>
A:Cross-references: EMBL:X51943; NID:g32435; PIDN:CAA36206.1; PID:g32436
R:Jaye, M.; Howk, R.; Burgess, W.; Ricca, G.A.; Chiu, I.M.; Ravera, M.W.; O'Brien, S.J.;
Science 233, 541-545, 1986
A:Title: Human endothelial cell growth factor: cloning, nucleotide sequence, and chromos
A:Reference number: A24662; MUID:86261805
A:Accession: A24662
A:Molecule type: mRNA
A:Residues: 1-155 <JAY>
A:Cross-references: GB:M13361; NID:g181941; PIDN:AAA79245.1; PID:g181942
R:Yu, Y.L.; Kha, H.; Golden, J.A.; Michielsen, A.A.J.; Goetzl, E.J.; Turck, C.W.
J. Exp. Med. 175, 1073-1080, 1992
A:Title: An acidic fibroblast growth factor protein generated by alternate splicing acts
A:Reference number: JH0707; MUID:92202857
A:Accession: JH0707
A:Molecule type: mRNA
A:Residues: 1-155 <YU>
A:Cross-references: GB:X65778; NID:g396163; PIDN:CAA46661.1; PID:g396164
R:Payson, R.A.; Canatan, H.; Chotani, M.A.; Wang, W.P.; Harris, S.E.; Myers, R.L.; Chiu,
Nucleic Acids Res. 21, 489-495, 1993
A:Title: Cloning of two novel forms of human acidic fibroblast growth factor (afGF) mRNA
A:Reference number: S35535; MUID:93181239
A:Accession: S35535
A:Status: translation not shown
A:Molecule type: mRNA
A:Residues: 1-58 <PAY>
A:Cross-references: GB:L01485
A:Accession: S35536
A:Status: translation not shown
A:Molecule type: mRNA
A:Residues: 1-58 <PA2>
A:Cross-references: GB:L01487
R:Crumley, G.; Dionne, C.A.; Jaye, M.
Biochem. Biophys. Res. Commun. 171, 7-13, 1990
A:Title: The gene for human acidic fibroblast growth factor encodes two upstream exons
A:Reference number: I39412; MUID:90365758
A:Accession: I39412
A:Status: translation not shown
A:Molecule type: mRNA
A:Residues: 1-40 <RES>
A:Cross-references: GB:M60515; NID:g178226; PIDN:AAA51672.1; PID:g553170; GB:M60516; NID
R:Harper, J.W.; Strydom, D.J.; Lobb, R.R.
Biochemistry 25, 4097-4103, 1986
A:Reference number: A23553; MUID:86296647
A:Accession: A23553
A:Molecule type: protein
A:Residues: 16-155 <HAR>
R:Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, R.A.
Biochem. Biophys. Res. Commun. 138, 611-617, 1986
A:Title: The complete amino acid sequence of human brain-derived acidic fibroblast growth
A:Reference number: A24820; MUID:86295741
A:Accession: A24820
A:Molecule type: protein
A:Residues: 16-155 <GIM>
R:Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, R.A.
Biochem. Biophys. Res. Commun. 135, 541-548, 1986
A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal
A:Reference number: A90122; MUID:86186784
A:Accession: A24243
A:Molecule type: protein
A:Residues: 16-47 <GT2>
A:Experimental source: brain
R:Gautschi, P.; Prater-Schroder, M.; Bohlen, P.
FEBS Lett. 204, 203-207, 1986
A:Title: Partial molecular characterization of endothelial cell mitogens from human brain
A:Reference number: A91364; MUID:86275260

A;Accession: A24301
A;Molecule type: protein
A;Residues: 16-30,'X',32-49 <GAU>
R;Gautschi-Sova, P.; Muller, T.; Bohlen, P.
Biochem. Biophys. Res. Commun. 140, 874-880, 1986
A;Title: Amino acid sequence of human acidic fibroblast growth factor.
A;Reference number: A26386; MUID:87048871
A;Accession: A26386
A;Molecule type: protein
A;Residues: 16-155 <GA2>
A;Experimental source: brain
R;Chavan, A.J.; Haley, B.E.; Volkin, D.B.; Marfia, K.E.; Verticelli, A.M.; Bruner, J.
Biochemistry 33, 7193-7202, 1994
A;Title: Interaction of nucleotides with acidic fibroblast growth factor (FGF-1).
A;Reference number: A53639; MUID:94271773
A;Accession: A53639
A;Molecule type: protein
A;Residues: 16-30,'X',32-38;73-75,'X',77-97,'X',99-101;128-131,'X',133-140,'X',142-143
A;Genetics:
A;Gene: GDB:FGF1; FGFA
A;Cross-references: GDB:119909; OMIM:131220
A;Map position: 5q31.3-5q33.2
A;Introns: 57/1; 91/3
C;Superfamily: fibroblast growth factor
C;Keywords: alternative splicing; growth factor; heparin binding
F;16-155/Product: fibroblast growth factor 1 #status experimental <MAT>
F;129/Binding site: carbohydrate (Asn) (covalent) #status absent

Query Match		28.28;	Score 174.5;	DB 1;	length 155;
Best local Similarity		59.3%;	Pred. No. 9.2e-07;		
Matches	35;	Conservative	4;	Mismatches	17; Indels 3; Gaps 1;
QY	56	MAAGSITTLPALPEDGSGAPPGHFKDPKRLCYCKNGGFLRIHPDGRVDSVREKSDPH	114		
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Db	1	MAEGEITTFALTAEKEN---	LPGNYKKPKLLYCSNGGHFLRIIPDGTVDGTRDRSDQH	56	

RESULT	14
A60721	acidic fibroblast growth factor - golden hamster
N:Alternate names:	heparin-binding growth factor 1
C:Species:	Mesocricetus auratus (golden hamster)
C:Date:	10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
C:Accession:	A60721
R:Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.	
J. Cell. Biochem.	43, 17-26, 1990
A:Title:	Characterization of the hamster DDT-1 cell aFGF/HGBF-I gene and cDNA and its
A:Reference number:	A60721; MUID:90270291
A:Accession:	A60721
A:Status:	not compared with conceptual translation
A:Molecule type:	DNA
A:Residues:	1-155 <HAL>
C:Superfamily:	fibroblast growth factor
C:Keywords:	growth factor; heparin binding

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Query Match          28.08; Score 173.5; DB 1; Length 155;
Best Local Similarity 59.3%; Pred. No. 1.1e-06;
Matches 35; Conservative 4; Mismatches 17; Indels 3; Gaps 1;

OY   56 MAAGSITTLPALPEDGSGAAPPGHFKDPKRLYCNGGFLLRIHDDGRVDGVREKSDPH 114
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Db    1 MAEGETTFESALTERRFN---LPPGNYYKKPKLLYCNSNGHFLLRILPDGTVDGTRDRSDOH 56

RESULT 15
A60130
acidic fibroblast growth factor - chicken
N: Alternate names: endothelial cell growth factor
C: Species: Gallus gallus (chicken)
C: Date: 03-Mar-1993 #sequence_revision 03-Mar-1993 #text_change 16-Jul-1999
C: Accession: A60130; S02639

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Sun Jun 2 18:28:49 2002

us-09-642--277a-2.rpr

Page 7

R;Schneider, H.; Risau, W.
Development 111, 1143-1154, 1991
A;Title: Differentiating and mature neurons express the acidic fibroblast growth factor
A;Reference number: A60130; MUID:91347925
A;Accession: A60130
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-155 <SCH>
A;Cross-references: GB:S63263; NID:g234372; PIDN:AAB19629.1; PID:g234373
R;Risau, W.; Gautschi-Sova, P.; Boehlen, P.
EMBO J. 7, 959-962, 1988
A;Title: Endothelial cell growth factors in embryonic and adult chick brain are related
A;Reference number: S02639; MUID:88296438
A;Accession: S02639
A;Molecule type: protein
A;Residues: 22-30,'X',32-44,'X',46-48 <RIS>
C;Superfamily: fibroblast growth factor
C;Keywords: growth factor

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Query Match      27.9%;   Score 172.5;   DB 2;   Length 155;
Best Local Similarity 59.3%;   Pred. No. 1.3e-06;
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OY 56 MAAGSITTLPALPEDEGSGAPPGHFKDPKRLCYCKNGCFRLRIHPDGRVDGVREKSDPH 114
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Db 1 MAEGEITTTALTERTFG--LPLGNYKKPKILYCSNGCHFLRLPDGKVDGTDRDRSDQH 56

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Search completed: June 2, 2002, 18:02:20
Job time: 498 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:01:37 ; Search time 28.4 Seconds

(without alignments)
98.046 Million cell updates/sec

Title: US-09-642-277A-2

Perfect score: 619

Sequence: 1 LGDRGRGRALPGRGLGGRGR.....FLRIHPDGRVDGVREKSDPH 114

Scoring table:

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Gapop 10.0 , Gapext 0.5

Searched: 231628 seqs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents AA:*

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2: /cgn2_6/ptodata/2/1aa/5B.COMB.pep:*

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	619	100.0	210	1	US-08-464-590A-14 Sequence 14, Appl
2	619	100.0	210	2	US-08-207-412B-9 Sequence 9, Appli
3	619	100.0	210	3	US-09-093-585-14 Sequence 14, Appl
4	340	54.9	67	3	US-08-897-924A-8 Sequence 1, Appli
5	339	54.8	140	5	PCT-US90-06962-1 Sequence 2, Appli
6	339	54.8	158	4	US-09-220-077C-2 Sequence 39, Appl
7	337	54.4	235	1	US-08-078-683A-39 Sequence 3, Appli
8	333	53.8	158	2	US-08-599-895-3 Sequence 3, Appli
9	333	53.8	158	3	US-09-322-676-3 Sequence 3, Appli
10	333	53.8	158	3	US-09-322-676-3 Sequence 3, Appli
11	333	53.8	158	4	US-09-466-036A-3 Sequence 3, Appli
12	332.5	53.7	432	1	US-07-959-369-8 Sequence 9, Appli
13	332.5	53.7	432	1	US-07-959-369-9 Sequence 20, Appl
14	332.5	53.7	432	2	US-08-836-854-20 Sequence 8, Appli
15	328	53.0	150	1	US-08-441-629-8 Sequence 8, Appli
16	328	53.0	150	3	US-08-776-207-8 Sequence 8, Appli
17	328	53.0	150	5	PCT-US95-09172-8 Sequence 6, Appli
18	328	53.0	155	1	US-07-959-369-6 Sequence 7, Appli
19	328	53.0	155	1	US-07-959-369-7 Sequence 1, Appli
20	328	53.0	155	1	US-07-842-177A-1 Sequence 10, Appl
21	328	53.0	155	1	US-08-439-725A-10 Sequence 10, Appl
22	328	53.0	155	1	US-08-325-632-1 Sequence 1, Appli
23	328	53.0	155	1	US-08-462-169B-10 Sequence 10, Appl
24	328	53.0	155	2	US-08-867-471-10 Sequence 14, Appl
25	328	53.0	155	2	US-08-438-439C-14 Sequence 28, Appl
26	328	53.0	155	2	US-08-951-822-28 Sequence 10, Appl
27	328	53.0	155	3	US-09-103-079-10 Sequence 10, Appl

28	328	53.0	155	3	US-08-705-245-6 Sequence 6, Appli
29	328	53.0	155	3	US-08-897-924A-25 Sequence 25, Appl
30	328	53.0	155	3	US-08-718-904-11 Sequence 11, Appl
31	328	53.0	155	3	US-09-023-082A-17 Sequence 17, Appl
32	328	53.0	155	3	US-09-030-613-3 Sequence 2, Appli
33	328	53.0	155	4	US-09-098-628-2 Sequence 3, Appli
34	328	53.0	155	4	US-09-451-905-3 Sequence 28, Appl
35	328	53.0	155	4	US-09-368-951-28 Sequence 2, Appli
36	328	53.0	155	5	PCT-US91-02186-2 Sequence 4, Appli
37	328	53.0	155	5	PCT-US91-02186-4 Patent No. 5514566
38	328	53.0	155	6	5514566-6 Patent No. 5514566
39	328	53.0	155	6	5514566-8 Patent No. 5514566
40	323	52.2	154	2	US-08-438-439C-24 Sequence 24, Appl
41	323	52.2	154	3	US-08-325-186-1 Sequence 1, Appli
42	319	51.5	153	3	US-08-325-186-2 Sequence 2, Appli
43	319	51.5	154	5	PCT-US91-02186-6 Sequence 6, Appli
44	319	51.5	155	1	US-08-023-757-2 Sequence 2, Appli
45	319	51.5	155	1	US-08-023-757-4 Sequence 4, Appli

ALIGNMENTS

RESULT 1

US-08-464-590A-14

Sequence 14, Application US/08464590A

Patent No. 5763214

GENERAL INFORMATION:

APPLICANT: HU, JING-SHAN

APPLICANT: ROSEN, CRAIG A.

TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR-11

NUMBER OF SEQUENCES: 17

CORRESPONDENCE ADDRESSES:

ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI,

ADDRESSEE: STEWART & OLSTEIN

STREET: 6 BECKER FARM ROAD

CITY: ROSELAND

STATE: NJ

COUNTRY: US

ZIP: 07068

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: PatentIn Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/464, 590A

FILING DATE: 05-JUN-1995

CLASSIFICATION: 536

ATTORNEY/AGENT INFORMATION:

NAME: MULLINS, J. G.

REGISTRATION NUMBER: 30,073

REFERENCE/DOCKET NUMBER: 325800-438

TELECOMMUNICATION INFORMATION:

TELEPHONE: (201) 994-1700

TELEFAX: (201) 994-1744

INFORMATION FOR SEQ ID NO: 14:

SEQUENCE CHARACTERISTICS:

LENGTH: 210 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-464-590A-14

Query Match

Best Local Similarity 100.0%; Score 619; DB 1; Length 210;

Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 LGDRGRGRALPGRGLGGRGRAPERVGGRGKGTAAAPRAAPAGSRPGAGTMAAGS 60

QY 61 ITTLPALPEDGSGAPPGHFKDPKRLCYCKNGGFFLRIHPDGRVDGVREKSDPH 114
Db 61 ITTLPALPEDGSGAPPGHFKDPKRLCYCKNGGFFLRIHPDGRVDGVREKSDPH 114

RESULT 2

US-08-207-412B-9

; Sequence 9, Application US/08207412B
; Patent No. 5817485

GENERAL INFORMATION:

APPLICANT: Hu, Jing-Shan

TITLE OF INVENTION: Fibroblast Growth Factor-10

NUMBER OF SEQUENCES: 15

CORRESPONDENCE ADDRESS:

ADDRESSEE: Carella, Byrne, Bain, Gilfillan, Cecchi,

ADDRESSER: Stewart & Olstein

STREET: 6 Becker Farm Road

CITY: Roseland

STATE: NJ

COUNTRY: USA

ZIP: 07068-1739

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/207,412B

FILING DATE: 08-MAR-1994

CLASSIFICATION: 435

ATTORNEY/AGENT INFORMATION:

NAME: Ferraro, Gregory D

REGISTRATION NUMBER: 36,134

REFERENCE/DOCKET NUMBER: 325800-100

TELEPHONE: 201-994-1700

TELEFAX: 201-994-1744

INFORMATION FOR SEQ ID NO: 9:

SEQUENCE CHARACTERISTICS:

LENGTH: 210 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: protein

US-08-207-412B-9

Query Match

Best Local Similarity 100.0%; Score 619; DB 2; Length 210;

Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 61 ITTLPALPEDGSGAPPGHFKDPKRLCYCKNGGFFLRIHPDGRVDGVREKSDPH 114

RESULT 3

US-09-093-585-14

; Sequence 14, Application US/09093585
; Patent No. 6110893

GENERAL INFORMATION:

APPLICANT: HU, JING-SHAN

TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR-11

NUMBER OF SEQUENCES: 17

CORRESPONDENCE ADDRESS:

ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI,

ADDRESSER: STEWART & OLSTEIN

STREET: 6 BECKER FARM ROAD

CITY: ROSELAND

STATE: NJ

COUNTRY: US

ZIP: 07068

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/093,585

FILING DATE:

CLASSIFICATION:

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 08/464,590

FILING DATE: 05-JUN-1995

ATTORNEY/AGENT INFORMATION:

NAME: MULINS, J. G.

REGISTRATION NUMBER: 30,073

REFERENCE/DOCKET NUMBER: 325800-438

TELEPHONE: (201) 994-1700

TELEFAX: (201) 994-1744

INFORMATION FOR SEQ ID NO: 14:

SEQUENCE CHARACTERISTICS:

LENGTH: 210 amino acids

TYPE: amino acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: protein

US-09-093-585-14

Query Match

Best Local Similarity 100.0%; Score 619; DB 3; Length 210;

Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

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Db 1 LGDRGRALPGRLGGRGRAPERVGGRRGRTAAPRAAPARAGSRPGPAGTMAAGS 60

QY 61 ITTLPALPEDGSGAPPGHFKDPKRLCYCKNGGFFLRIHPDGRVDGVREKSDPH 114

Db 61 ITTLPALPEDGSGAPPGHFKDPKRLCYCKNGGFFLRIHPDGRVDGVREKSDPH 114

RESULT 4

US-08-897-924A-8

; Sequence 8, Application US/08897924A
; Patent No. 6028058

GENERAL INFORMATION:

APPLICANT: Flokiewicz, Robert Z.

TITLE OF INVENTION: METHODS AND COMPOSITIONS FOR REGULATING

NUMBER OF SEQUENCES: 28

CORRESPONDENCE ADDRESS:

ADDRESSEE: SEED and BERRY, LLP

STREET: 6300 Columbia Center, 701 Fifth Avenue

CITY: Seattle

STATE: Washington

COUNTRY: USA

ZIP: 98104

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patent Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/08/897,924A

FILING DATE: 21-JUL-1997

CLASSIFICATION: 514

ATTORNEY/AGENT INFORMATION:

NAME: Maki, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 200124.403
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
LENGTH: 67 amino acids
TYPE: amino acid
STRANDEDNESS:
TOPOLOGY: linear
US-08-897-924A-8

Query Match 54.98; Score 340; DB 3; Length 67;
Best Local Similarity 98.58; Pred. No. 3.1e-22;
Matches 66; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 LGDRGRALPGRLGGRGRAPRVRVGRGRGTAPRAAPARGSRPGAGTMAAGS 60
Db 1 LGDRGRALPGRLGGRGRAPRVRVGRGRGTAPRAAPARGSRPGAGTMAAGS 60

OY 61 ITTLPAL 67
Db 61 ITTLPAL 67

RESULT 5
PCT-US90-06962-1

Sequence 1, Application PC/TUS9006962
GENERAL INFORMATION:
APPLICANT: Baird, J. A.
APPLICANT: Hajjar, David P.
TITLE OF INVENTION: Treatment of HSV
NUMBER OF SEQUENCES: 2
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fitch, Even, Tabin & Flannery
STREET: 135 South LaSalle Street, Suite 900
CITY: Chicago
STATE: Illinois
COUNTRY: USA
ZIP: 60603
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.24
CURRENT APPLICATION DATA:
APPLICATION NUMBER: PCT/US90/06962
FILING DATE: 19901129
CLASSIFICATION: Au 186/C1 424
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/443,939
FILING DATE: 30-NOV-1989
ATTORNEY/AGENT INFORMATION:
NAME: Schumann, James J.
REGISTRATION NUMBER: 20856
REFERENCE/DOCKET NUMBER: 50742
TELECOMMUNICATION INFORMATION:
TELEPHONE: (619)552-1311
TELEFAX: (619)552-0095
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 157 amino acids
TYPE: AMINO ACID
TOPOLOGY: linear
MOLECULE TYPE: protein
PCT-US90-06962-1

Query Match 54.88; Score 339; DB 5; Length 140;
Best Local Similarity 100.0%; Pred. No. 7.8e-22;

Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVEKSDP 113
Db 1 GTMAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVEKSDP 60

OY 114 H 114
Db 61 H 61

RESULT 6
US-09-220-077C-2

Sequence 2, Application US/09220077C
Patent No. 6274712
GENERAL INFORMATION:
APPLICANT: Springer, Barry A.
APPLICANT: Pantoliano, Michael W.
APPLICANT: Sharp, Celia M.
TITLE OF INVENTION: Analogs of Human basic Fibroblast Growth Factor
FILE REFERENCE: 1503.0220001
CURRENT APPLICATION NUMBER: US/09/220,077C
CURRENT FILING DATE: 1998-12-23
PRIOR APPLICATION NUMBER: US 60/068,667
PRIOR FILING DATE: 1997-12-23
NUMBER OF SEQ ID NOS: 4
SOFTWARE: PatentIn version 3.0
SEQ ID NO 2
LENGTH: 158
TYPE: PRT
ORGANISM: Homo sapiens
US-09-220-077C-2

Query Match 54.88; Score 339; DB 4; Length 158;
Best Local Similarity 100.0%; Pred. No. 8.9e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVEKSDP 113
Db 2 GTMAAGSITTLPALPEDGSGAFPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVEKSDP 61

OY 114 H 114
Db 62 H 62

RESULT 7
US-08-078-683A-39

Sequence 39, Application US/08078683A
Patent No. 5486599
GENERAL INFORMATION:
APPLICANT: Saunders, Scott
APPLICANT: Bernfield, Merton
APPLICANT: Kato, Masato
TITLE OF INVENTION: Construction and use of Synthetic
NUMBER OF SEQUENCES: 43
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street
CITY: Boston
STATE: MA
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII (text)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/078,683A
FILING DATE: 17-JUN-1993

CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Vincent, Matthew P.
REGISTRATION NUMBER: 36,709
REFERENCE/DOCKET NUMBER: CME-062
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 39:
SEQUENCE CHARACTERISTICS:
LENGTH: 235 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
FRAGMENT TYPE: internal
US-08-078-683A-39

Query Match 54.4%; Score 337; DB 1; Length 235;
Best Local Similarity 64.2%; Pred. No. 1.9e-21;
Matches 70; Conservative 2; Mismatches 19; Indels 18; Gaps 3;

QY 24 PERVGGRG-----RGRGTAA-----PRAAPAA-----RGRPGPAGTMAAGSITTLIP 65
DB 31 PEDDGGSDSDNFSGSGTGALPDTLSKQTPSTWKDVLLTATPTAPEPTSAAGSITTLIP 90
QY 66 ALPEDGSGAFPFGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPH 114
DB 91 ALPEDGSGAFPFGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPH 139

RESULT 8

US-08-599-895-3
Sequence 3, Application US/08599895
Patent No. 5891855
GENERAL INFORMATION:
APPLICANT: Florckiewicz, Robert Z.
TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
CITY: Seattle
STATE: Washington
COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/599,895
FILING DATE: 31-JAN-1996
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: No. 5891855tenburg Ph.D., Carol
REGISTRATION NUMBER: 39,317
REFERENCE/DOCKET NUMBER: 760100.416
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 158 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-599-895-3

Query Match 53.8%; Score 333; DB 2; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.8e-21;

Matches 60; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 55 TMAAGSITTLPALPEDGSGAFPFGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPH 114
DB 3 TMAAGSITTLPALPEDGSGAFPFGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPH 62

RESULT 9

US-09-211-290-3
Sequence 3, Application US/09211290
Patent No. 6071885
GENERAL INFORMATION:
APPLICANT: Florckiewicz, Robert Z.
TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
CITY: Seattle
STATE: Washington
COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/211,290
FILING DATE: 12-DEC-1998
CLASSIFICATION:
ATTORNEY/AGENT INFORMATION:
NAME: Makl, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 200124.401D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 158 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-09-211-290-3

Query Match 53.8%; Score 333; DB 3; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.8e-21;
Matches 60; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 55 TMAAGSITTLPALPEDGSGAFPFGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPH 114
DB 3 TMAAGSITTLPALPEDGSGAFPFGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPH 62

RESULT 10

US-09-322-676-3
Sequence 3, Application US/09322676
Patent No. 6107283
GENERAL INFORMATION:
APPLICANT: Florckiewicz, Robert Z.
TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
CITY: Seattle
STATE: Washington
COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/322,676
FILING DATE:
CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 09/211,290
FILING DATE: 12-DEC-1998
ATTORNEY/AGENT INFORMATION:
NAME: Makl, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 200124.401D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 158 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-09-322-676-3

Query Match 53.8%; Score 333; DB 3; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.8e-21;
Matches 60; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 55 TMAAGSITLTPALPEDGSGAFPPGHPKDPKRLCKNGGFFLRHPDGRVDGVREKSDPH 114
DB 3 TMAAGSITLTPALPEDGSGAFPPGHPKDPKRLCKNGGFFLRHPDGRVDGVREKSDPH 62

RESULT 11
US-09-466-036A-3
Sequence 3, Application US/09466036A
Patent No. 6281197
GENERAL INFORMATION:
APPLICANT: Florjkiwicz, Robert Z.
TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and HERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
CITY: Seattle
STATE: Washington
COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/09/466,036A
FILING DATE: 17-Dec-2001
CLASSIFICATION: <Unknown>
PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 09/211,290
FILING DATE: <Unknown>
ATTORNEY/AGENT INFORMATION:
NAME: Makl, David J.
REGISTRATION NUMBER: 31,392
REFERENCE/DOCKET NUMBER: 200124.401D1
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 158 amino acids
TYPE: amino acid

TOPOLOGY: linear
MOLECULE TYPE: protein
SEQUENCE DESCRIPTION: SEQ ID NO: 3:
US-09-466-036A-3

Query Match 53.8%; Score 333; DB 4; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.8e-21;
Matches 60; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 55 TMAAGSITLTPALPEDGSGAFPPGHPKDPKRLCKNGGFFLRHPDGRVDGVREKSDPH 114
DB 3 TMAAGSITLTPALPEDGSGAFPPGHPKDPKRLCKNGGFFLRHPDGRVDGVREKSDPH 62

RESULT 12
US-07-959-369-8
Sequence 8, Application US/07959369
Patent No. 5302701
GENERAL INFORMATION:
APPLICANT: Hidetaka HASHI et al.
TITLE OF INVENTION: No. 5302701el Functional Polypeptide
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Wenderoth, Lind & Ponack
STREET: 805 Fifteenth Street, N.W., #700
CITY: Washington
STATE: D.C.
COUNTRY: U.S.A.
ZIP: 20005
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 5.25 inch, 500 kb
COMPUTER: IBM Compatible
OPERATING SYSTEM: MS-DOS
SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/959,369
FILING DATE: 19921013
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Warren M. Cheek, Jr.
REGISTRATION NUMBER: 33,367
REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-371-8850
TELEFAX:
TELEX:
INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
LENGTH: 432 amino acids
TYPE: AMINO ACID
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: polypeptide
HYPOTHETICAL:
ANTI-SENSE:
FRAGMENT TYPE:
ORIGINAL SOURCE:
ORGANISM:
STRAIN:
INDIVIDUAL ISOLATE:
DEVELOPMENTAL STAGE:
HAPLOTYPE:
TISSUE TYPE:
CELL TYPE:
CELL LINE:
ORGANELLE:
IMMEDIATE SOURCE:
LIBRARY:
CLONE:

POSITION IN GENOME:
CHROMOSOME/SEGMENT:
MAP POSITION:
UNITS:
FEATURE:
NAME/KEY:
LOCATION:
IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
AUTHORS:
TITLE:
JOURNAL:
VOLUME:
ISSUE:
PAGES:
DATE:
DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID NO:
US-07-959-369-8

Query Match 53.7%; Score 332.5; DB 1; Length 432;
Best Local Similarity 77.1%; Pred. No. 8.4e-21;
Matches 64; Conservative 4; Mismatches 14; Indels 1; Gaps 1;
QY 33 GRGTAAPRAAPARAGSRPG-PAGTMAAGSITTLPALPEDGGSGAFPPGHFKDPKRLYCKN 91
DB 254 GRGDSPASSKPSISINRYTEIDKPSMAAGSITTLPALPEDGGSGAFPPGHFKDPKRLYCKN 313
QY 92 GGFFLRHPDGRVDGVREKSDPH 114
DB 314 GGFFLRHPDGRVDGVREKSDPH 336

RESULT 13
US-07-959-369-9
Sequence 9, Application US/07959369
Patent No. 5302701
GENERAL INFORMATION:
APPLICANT: Hidelaka HASHI et al.
TITLE OF INVENTION: No. 5302701el Functional Polypeptide
NUMBER OF SEQUENCES: 23
CORRESPONDENCE ADDRESS:
ADDRESSEE: Wenderoth, Lind & Ponack
STREET: 805 Fifteenth Street, N.W., #700
CITY: Washington
STATE: D.C.
COUNTRY: U.S.A.
ZIP: 20005
COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 5.25 inch, 500 kb
COMPUTER: IBM Compatible
OPERATING SYSTEM: MS-DOS
SOFTWARE: Wordperfect 5.1
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/07/959,369
FILING DATE: 19921013
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
ATTORNEY/AGENT INFORMATION:
NAME: Warren M. Cheek, Jr.
REGISTRATION NUMBER: 33,367
REFERENCE/DOCKET NUMBER:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 202-371-8850
TELEFAX:
TELEX:
INFORMATION FOR SEQ ID NO: 9:

SEQUENCE CHARACTERISTICS:
LENGTH: 432 amino acids
TYPE: AMINO ACID
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: polypeptide
HYPOTHETICAL:
ANTI-SENSE:
FRAGMENT TYPE:
ORIGINAL SOURCE:
ORGANISM:
STRAIN:
INDIVIDUAL ISOLATE:
DEVELOPMENTAL STAGE:
HAPLOTYPE:
TISSUE TYPE:
CELL TYPE:
CELL LINE:
ORGANELLE:
IMMEDIATE SOURCE:
LIBRARY:
CLONE:
POSITION IN GENOME:
CHROMOSOME/SEGMENT:
MAP POSITION:
UNITS:
FEATURE:
NAME/KEY:
LOCATION:
IDENTIFICATION METHOD:
OTHER INFORMATION:
PUBLICATION INFORMATION:
AUTHORS:
TITLE:
JOURNAL:
VOLUME:
ISSUE:
PAGES:
DATE:
DOCUMENT NUMBER:
FILING DATE:
PUBLICATION DATE:
RELEVANT RESIDUES IN SEQ ID NO:
US-07-959-369-9

Query Match 53.7%; Score 332.5; DB 1; Length 432;
Best Local Similarity 77.1%; Pred. No. 8.4e-21;
Matches 64; Conservative 4; Mismatches 14; Indels 1; Gaps 1;
QY 33 GRGTAAPRAAPARAGSRPG-PAGTMAAGSITTLPALPEDGGSGAFPPGHFKDPKRLYCKN 91
DB 254 GRGDSPASSKPSISINRYTEIDKPSMAAGSITTLPALPEDGGSGAFPPGHFKDPKRLYCKN 313
QY 92 GGFFLRHPDGRVDGVREKSDPH 114
DB 314 GGFFLRHPDGRVDGVREKSDPH 336
RESULT 14
US-08-836-854-20
Sequence 20, Application US/08836854
Patent No. 5824547
GENERAL INFORMATION:
APPLICANT: HASHINO, Kimikazu
APPLICANT: MATSUSHITA, Hideyuki
APPLICANT: KATO, Ikunoshin
TITLE OF INVENTION: METHOD OF PRODUCTION OF TRANSFECTED CELLS
NUMBER OF SEQUENCES: 21
CORRESPONDENCE ADDRESS:
ADDRESSEE: Browdy and Neimark
STREET: 419 Seventh Street N.W. Ste. 300
CITY: Washington

Sun Jun 2 18:28:49 2002

us-09-642-277a-2.rai

Page 7

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: STATE D.C.
: COUNTRY: USA
: ZIP: 20004
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: COMPUTER READABLE FORM:
: MEDIUM TYPE: Floppy disk
: COMPUTER: IBM PC compatible
: OPERATING SYSTEM: PC-DOS/MS-DOS
: SOFTWARE: PatentIn Release #1.0, Version #1.30
: CURRENT APPLICATION DATA:
: APPLICATION NUMBER: US/08/836,854
: FILING DATE:
:
: CLASSIFICATION: 435
: PRIOR APPLICATION DATA:
: APPLICATION NUMBER: PCT/JP95/02425
: FILING DATE: 29-NOV-1995
: PRIOR APPLICATION DATA:
: APPLICATION NUMBER: 317721/1994
: FILING DATE: 29-NOV-1994
: ATTORNEY/AGENT INFORMATION:
: NAME: Browdy, Roger L.
: REGISTRATION NUMBER: 25,618
: REFERENCE/DOCKET NUMBER: HASHINO-1
: TELECOMMUNICATION INFORMATION:
: TELEPHONE: (202) 628-5197
: TELEFAX: (202) 737-3528
: INFORMATION FOR SEQ ID NO: 20:
: SEQUENCE CHARACTERISTICS:
: LENGTH: 432 amino acids
: TYPE: amino acid
: STRANDEDNESS: single
: TOPOLOGY: linear
: MOLECULE TYPE: peptide
:
: US-08-836-854-20

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RESULT 15
 US-08-441-629-8
 Sequence 8, Application US/08441629
 Patent No. 5766923
 GENERAL INFORMATION:
 APPLICANT: Kirschner, Marc W.
 APPLICANT: Kinoshita, No. 5766923iyuki
 TITLE OF INVENTION: RECEPTOR-LIGAND ASSAY
 NUMBER OF SEQUENCES: 17
 CORRESPONDENCE ADDRESS:
 ADDRESSEE: Hamilton, Brook, Smith & Reynolds, P.C.
 STREET: Two Militia Drive
 CITY: Lexington
 STATE: Massachusetts
 COUNTRY: USA
 ZIP: 02173
 COMPUTER READABLE FORM:
 MEDIUM TYPE: Floppy disk
 COMPUTER: IBM PC compatible
 OPERATING SYSTEM: PC-DOS/MS-DOS
 SOFTWARE: Patentin Release #1.0, Version #1.30
 CURRENT APPLICATION DATA:
 APPLICATION NUMBER: US/08/441,629
 FILING DATE: 15-MAY-1995
 CLASSIFICATION: 435

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1  PRIOR APPLICATION DATA:
2  APPLICATION NUMBER:  US 08/279,217
3  FILING DATE:  22-JUL-1994
4  ATTORNEY/AGENT INFORMATION:
5  NAME:  Granahan, Patricia
6  REGISTRATION NUMBER:  32,227
7  REFERENCE/DOCKET NUMBER:  H095-01A
8  TELECOMMUNICATION INFORMATION:
9  TELEPHONE:  (617) 861-6240
10 TELEFAX:  (617) 861-9540
11 INFORMATION FOR SEQ ID NO:  8:
12     SEQUENCE CHARACTERISTICS:
13         LENGTH: 150 amino acids
14         TYPE:  amino acid
15         STRANDEDNESS:  single
16         TOPOLOGY:  linear
17     MOLECULE TYPE:  protein
18     US-08-441-629-8

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	Query Match	53.0%	Score 328;	DB 1;	length 150;	
	Best Local Similarity	100.0%;	Pred. No. 7e-21;			
Matches	59;	Conservative	0;	Mismatches	0;	Indels 0; Gaps 0.
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Db	1 MAAGSITTLPALPEDGSGAFPFGHKDKPRLYCKNGGFLLRIHPDGRVDGVREKSDFH 59 					

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Search completed: June 2, 2002, 18:01:37
Job time: 455 sec
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GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:03:39 ; Search time 73.59 Seconds

(Without alignments)
172.067 Million cell updates/sec

Title: US-09-642-277A-2

Perfect score: 619
Sequence: 1 LGDRGRGRALPGRLGGRGR.....FLRIHPDGRVDGVREKSDPH 114

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%
Listing first 45 summaries

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21: /SIDS1/gcgdata/hold-geneseq/geneseq-emb1/AA2000.DAT:*
22: /SIDS1/gcgdata/hold-geneseq/geneseq-emb1/AA2001.DAT:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	619	100.0	114	22	AAB60696	Human basic fibrob
2	619	100.0	210	11	AAR06685	Recombinant basic
3	619	100.0	210	22	AAB50299	Human fibroblast g
4	619	100.0	210	22	AAB50706	Human fibroblast g
5	617	99.7	210	22	AAB60695	Human basic fibrob
6	617	99.7	211	11	AAR07076	Extended recombin
7	340	54.9	67	20	AAW99376	Human fibroblast g
8	339	54.8	157	8	AAW71085	Sequence of human
9	339	54.8	157	13	AAR25199	Basic fibroblast g
10	339	54.8	157	22	AAG65078	human fibroblast g
11	339	54.8	157	22	AAG65079	human fibroblast g

12	339	54.8	157	22	AAG65080	human fibroblast g
13	339	54.8	157	22	AAG65081	human fibroblast g
14	339	54.8	157	22	AAG65082	human fibroblast g
15	339	54.8	157	22	AAG65083	human fibroblast g
16	339	54.8	157	22	AAG65084	human fibroblast g
17	339	54.8	157	22	AAG65085	human fibroblast g
18	339	54.8	157	22	AAG65086	human fibroblast g
19	339	54.8	157	22	AAG65087	human fibroblast g
20	339	54.8	157	22	AAG65088	human fibroblast g
21	339	54.8	157	22	AAG65089	human fibroblast g
22	339	54.8	157	22	AAG65090	human fibroblast g
23	339	54.8	157	22	AAG65091	human fibroblast g
24	339	54.8	157	22	AAG65092	human fibroblast g
25	339	54.8	157	22	AAG65093	human fibroblast g
26	339	54.8	157	22	AAG65094	human fibroblast g
27	339	54.8	157	22	AAG65095	human fibroblast g
28	339	54.8	157	22	AAG65096	human fibroblast g
29	339	54.8	157	22	AAG65097	human fibroblast g
30	339	54.8	157	22	AAG65098	human fibroblast g
31	339	54.8	157	22	AAG65099	human fibroblast g
32	339	54.8	157	22	AAG65100	human fibroblast g
33	339	54.8	157	22	AAG65101	human fibroblast g
34	339	54.8	157	22	AAG65102	human fibroblast g
35	339	54.8	157	22	AAG65103	human fibroblast g
36	339	54.8	157	22	AAG65104	human fibroblast g
37	339	54.8	157	22	AAG65105	human fibroblast g
38	339	54.8	157	22	AAG65106	human fibroblast g
39	339	54.8	157	22	AAG65107	human fibroblast g
40	339	54.8	157	22	AAG65108	human fibroblast g
41	339	54.8	157	22	AAG65109	human fibroblast g
42	339	54.8	157	22	AAG65110	human fibroblast g
43	339	54.8	157	22	AAG65111	human fibroblast g
44	339	54.8	157	22	AAG65112	human fibroblast g
45	339	54.8	157	22	AAG65113	human fibroblast g

ALIGNMENTS

RESULT 1	AAB60696	standard; protein; 114 aa.
ID	AAB60696;	
AC	AAB60696;	
XX		
DT	22-MAY-2001	(first entry)
XX		
DE	Human basic fibroblast growth factor (bFGF) 114 aa form, SEQ ID NO:2.	
XX		
KW	Human bFGF; basic fibroblast growth factor; 114 residue form;	
KW	central nervous system; CNS damage; brain damage; neural stimulant;	
KW	stem cell; conjoint administration; therapy; recovery;	
KW	ischaemia; hypoxia; trauma; neurodegenerative disorder;	
KW	infectious disease; cancer; autoimmune disease; metabolic disorder;	
KW	stroke; encephalomyelitis; Alzheimer's disease; Huntington's disease;	
KW	Parkinson's disease; Creutzfeldt-Jakob disease; multiple sclerosis;	
KW	amyotrophic lateral sclerosis.	
XX		
OS	Homo sapiens;	
XX		
PN	WO200112236-A2.	
XX		
PD	22-FEB-2001.	
XX		
PF	18-AUG-2000; 2000WO-US22843.	
XX		
PR	18-AUG-1999; 99US-0149561.	
XX		
PA	(GEHO) GEN HOSPITAL CORP.	
XX		
PI	Finkelstein SP, Snyder EY;	
XX		
DR	WPI; 2001-211142/21.	

CC hyperproliferative disorders, cardiovascular disorders and neurological
diseases, to prevent angiogenesis and to aid wound healing.
XX
SQ Sequence 210 AA;

Query Match 100.0%; Score 619; DB 22; Length 210;
Best Local Similarity 100.0%; Pred. No. 4.1e-46;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 LGDRGRALPGRLGGRGRAPERVGRGRGTAPRAAPARAGSRPGPAGTMAAGS 60
|||||
Db 1 Lgdrgralpggrlgrgrapervgrgrgtapaaraarsrpgpagtmaags 60
|||||

OY 61 ITTLPALPEDGSGAFPPGHFKDKPKRLCYCKNGGFLLRIHPDGRVDGVREKSDPH 114
|||||
Db 61 Ittlpalpedgsgafppghfkdkpkrlycknggffllrhpddgrvdyvrekssdp 114
|||||

RESULT 4

AAB50706
ID AAB50706 standard; protein; 210 AA.

AC AAB50706;

DT 20-MAR-2001 (first entry)

DE Human fibroblast growth factor 2 SEQ ID NO: 4.

KW Human; fibroblast growth factor 10; FGF-10; cancer; autoimmune disorder;
hyperproliferative disorder; cardiovascular disorder; angiogenesis;
wound healing; neurological disease; infection.

OS Homo sapiens.

PN WO200071152-A1.

PD 30-NOV-2000.

PF 18-MAY-2000; 2000WO-US13573.

PR 21-MAY-1999; 99US-0135523.

PA (HUMA-) HUMAN GENOME SCI INC.

PI Rosen CA, Alderson R, Weider R, Duan DR, Hu J, Gocayne JD;

DR WPI; 2001-016351/02.

PT Polynucleotide encoding human fibroblast growth factor 10, useful in
the diagnosis, treatment and prevention of cancer, immune disorders,
cardiovascular disorders and neurological diseases.

PS Disclosure; Page 263; 275pp; English.

CC The present invention provides the protein and coding sequences for human
fibroblast growth factor 10 (FGF-10). These sequences can be used in the
diagnosis and treatment of infections, cancer, autoimmune disorders,
hyperproliferative disorders, cardiovascular disorders and neurological
diseases, to prevent angiogenesis and to aid wound healing.

XX
SQ Sequence 210 AA;

Query Match

Best Local Similarity 100.0%; Score 619; DB 22; Length 210;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Db 61 Ittlpalpedgsgafppghfkdkpkrlycknggffllrhpddgrvdyvrekssdp 114
|||||

RESULT 5

AAB60695
ID AAB60695 standard; protein; 210 AA.

AC AAB60695;

DT 22-MAY-2001 (first entry)

DE Human basic fibroblast growth factor (bFGF) 22.5 kD form, SEQ ID NO:1.

KW Human bFGF; basic fibroblast growth factor; 22.5 kD form;
central nervous system; CNS damage; brain damage; neural stimulant;
stem cell; conjoint administration; therapy; recovery;
Ischaemia; hypoxia; trauma; neurodegenerative disorder;
infectious disease; cancer; autoimmune disease; metabolic disorder;
stroke; encephalomyelitis; Alzheimer's disease; Huntington's disease;
Parkinson's disease; Creutzfeldt-Jakob disease; multiple sclerosis;
amyotrophic lateral sclerosis.

OS Homo sapiens.

PN WO200112236-A2.

PD 22-FEB-2001.

PF 18-AUG-2000; 2000WO-US22843.

PR 18-AUG-1999; 99US-0149561.

PA (GEHO) GEN HOSPITAL CORP.

PI Finklestein SP, Snyder EY;

DR WPI; 2001-211142/21.

PT Treating central nervous system damage and brain damage resulting from
stroke, involves administering cells or stem cells and a neural
stimulant.

PS Claim 14; Fig 4; 56pp; English.

CC The invention relates to a method of treating an individual with
central nervous system (CNS) damage, particularly brain damage resulting
from stroke. The method involves the administration a neural stimulant
such as a polypeptide growth factor, and stem cells (e.g., neural stem
cells, haematopoietic stem cells, teratocarcinoma-derived cells or
embryonic stem cells) capable of giving rise to brain cells such as
neurons, oligodendroglia, astroglia or microglia. The conjoint
administration of the stem cells and the neural stimulant promotes
greater recovery from CNS damage than either treatment alone, and
provides a greater degree of recovery than is currently available with
other known treatment methods. From a study of the effectiveness of the
conjoint administration of foetal mouse neural stem cells with or
without basic fibroblast growth factor (bFGF) in a rat model of stroke,
it was found that the treatment's recovery-promoting effects are
probably produced through mechanisms other than the prevention of cell
death. The method is useful for treating injury to the brain and spinal
cord due to ischaemia, hypoxia, trauma, neurodegenerative disorders
infectious diseases, cancer, autoimmune disease and metabolic disorders.
CC Examples of such disorders include stroke, hypotension, arrested
breathing, cardiac arrest, brain tumours, brain injury,
encephalomyelitis, Alzheimer's disease, Huntington's disease, Parkinson's
disease, Creutzfeldt-Jakob disease, multiple sclerosis, and amyotrophic
lateral sclerosis. The present sequence represents a 22.5 kD (210
residue) form of human bFGF which is specifically claimed for use in the
method of the invention.

XX
SQ Sequence 210 AA;

Query Match 99.7%; Score 617; DB 22; Length 210;
Best Local Similarity 99.1%; Pred. No. 6e-46;
Matches 113; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 LGDRGRGRLPGRLGGRGRAPERVGGRGRTAAPRAAPARGSRPGPAGTMAAGS 60
:|||||
Db 1 mgdrggralpggrlggrgrapervgrgrgrgtaapraapargsrpgpagtmaags 60

OY 61 ITTLPALEDGSGAFPPGHFKDKPKRLYCKNGGFRLRIHPDGRVDGVREKSDPH 114
:|||||
Db 61 ittlpalpedgsgafppghfkdkpkrlycknggfflrhpdgrvdgvreksdph 114

RESULT 6
AAR07076
ID AAR07076 standard; protein; 211 AA.
XX
AC AAR07076;
XX
DT 11-JAN-1991 (first entry)
XX
DE Extended recombinant basic fibroblast growth factor.
XX
KW Basic fibroblast growth factor; tissue regeneration; infarction.
XX
PN FR2642086-A.
XX
PD 27-JUL-1990.
XX
PF 26-JAN-1989; 89FR-0000973.
XX
PR 26-JAN-1989; 89FR-0000973.
XX
PA (SNFI) SANOFI SA.
XX
PI Caput D, Ferrara P, Kaghad M;
XX
DR WPI; 1990-277408/37.
XX
DR N-PSDB; AAG05884.
XX
PT New recombinant gene encoding basic fibroblast growth factor - in
PT new high mol. wt. form, useful e.g. for stimulating tissue
PT regenerating or treating infarction
XX
PS Disclosure; fig 8; 43pp; French.
XX
CC This basic fibroblast growth factor (bFGF), encoded by clone
CC 409.2, stimulates growth of mesodermal and neuroectodermal cells.
CC It is thus potentially useful e.g. for regenerating damaged tissues,
CC and for treating myocardial infarctions, Parkinsons disease and
CC Alzheimers disease. It can be produced on a large scale using rec-
CC ombinant DNA methods without risk of contamination. See also AAG05884.
XX
SQ Sequence 211 AA;

Query Match 99.7%; Score 617; DB 11; Length 211;
Best Local Similarity 99.1%; Pred. No. 6.1e-46;
Matches 113; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 LGDRGRGRLPGRLGGRGRAPERVGGRGRTAAPRAAPARGSRPGPAGTMAAGS 60
:|||||
Db 1 mgdrggralpggrlggrgrapervgrgrgrgtaapraapargsrpgpagtmaags 60

OY 61 ITTLPALEDGSGAFPPGHFKDKPKRLYCKNGGFRLRIHPDGRVDGVREKSDPH 114
:|||||
Db 61 ittlpalpedgsgafppghfkdkpkrlycknggfflrhpdgrvdgvreksdph 114

RESULT 7
AAW99376
ID AAW99376 standard; peptide; 67 AA.

XX
AC AAW99376;
XX
DT 21-MAY-1999 (first entry)
XX
DE Human fibroblast growth factor 2 24 kD isoform N-terminus.
XX
KW Human; fibroblast growth factor; translational start site; isoform;
KW inhibition; nuclear localisation; nuclear trafficking component;
KW proliferation; inflammation; tumour growth; angiogenesis.
XX
OS Homo sapiens.
XX
PN WO9903489-A2.
XX
PD 28-JAN-1999;
XX
PF 20-JUL-1998; 98WO-US14997.
XX
PR 21-JUL-1997; 97US-0897924.
XX
PA (CIBL-) CIBLEX CORP.
XX
PI Florkiewicz RZ;
XX
DR WPI; 1999-131860/11.
XX
PT Inhibiting nuclear localisation of proteins - used for controlling
PT cellular functions, e.g. undesired proliferation and inflammation,
PT particularly tumours, and treating viral infection
XX
PS Claim 6; Fig 5; 53pp; English.
XX
CC This sequence represents the N-terminus of the 24 kD isoform of the
CC human fibroblast growth factor 2 (FGF2). The invention relates to
CC inhibiting nuclear localisation of a nuclear protein in a cell, by
CC administering an inhibitor of nuclear trafficking components.
CC Interrupting the interaction of trafficking components and nuclear
CC proteins may be used in a variety of applications, including inhibiting
CC nuclear localisation, modulating protein trafficking of nuclear proteins
CC such as FGF (in vitro or in vivo), identifying further trafficking
CC components, and treating a variety of conditions associated with nuclear
CC trafficking. The 24, 23 and 22 kD isoforms of FGF2 are nuclear proteins
CC whereas the 18 kD isoform is not but is secreted. Inhibiting the nuclear
CC transport of FGF-2 allows the control of undesired proliferation and
CC inflammation, particularly tumour growth. Increasing export of FGF
CC can promote angiogenesis. In addition, use of inhibitors of nuclear
CC localisation can limit or eradicate viral (e.g. HIV or EBV) infections.
XX
SQ Sequence 67 AA;

Query Match 54.9%; Score 340; DB 20; Length 67;
Best Local Similarity 98.5%; Pred. No. 1.7e-22;
Matches 66; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 1 LGDRGRGRLPGRLGGRGRAPERVGGRGRTAAPRAAPARGSRPGPAGTMAAGS 60
:|||||
Db 1 lgdrggralpggrlggrgrapervgrgrgrgtaapraapargsrpgpagtmaags 60

OY 61 ITTLPAL 67
:|||||
Db 61 ittlpal 67

RESULT 8
AAP71085
ID AAP71085 standard; protein; 157 AA.
XX
AC AAP71085;
XX
DT 03-APR-1991 (first entry)
XX

DE Sequence of human placental angiogenic factor (AF).
XX
KW Mitogenic peptide; chemotactic peptide; protease synthesis;
KW stimulator; plasminogen; collagen; wound healer.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Misc-difference 20 /note="AA No. 206"
XX
PN EP226181-A.
XX
PD 24-JUN-1987.
XX
PF 11-DEC-1986; 86EP-0117257.
XX
PR 12-AUG-1986; 86US-0895829.
PR 17-DEC-1985; 85US-0809873.
PR 16-JUL-1986; 86US-0888554.
XX
PA (SYNE-) SYNERGEN INC.
PI Moscatelli DA, Rifkin DB, Sommer A;
XX
DR WPI; 1987-171528/25.
DR N-PSDB; AAN71275.
XX
XX
PT Angiogenic factor protein from human placental tissue - has
PT active site(s) with mitogenic or chemotactic activity or with
PT ability to stimulate protease synthesis.
XX
XX
PS Claim 7; Page 49; 53pp; English.
XX
CC AF has mitogenic or chemotactic activity and stimulates protease
CC synthesis, partic. synthesis of plasminogen activator and
CC collagenase. AF can be used to increase the blood supply to an
CC organ. AF can stimulate healing of decubitus ulcers, wounds,
CC surgical incisions and burns.
XX
SQ Sequence 157 AA;

Query Match 54.8%; Score 339; DB 8; Length 157;
Best Local Similarity 100.0%; Pred. No. 4.7e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAFPPGHEKDPKRLCKNGGFLLRIHPDGRVGVREKSDP 113
Db 1 gtmagstltlpalpdpdgsgafppghkdpkrlcknggffllrhpdpgrvgyvrekssdp 60
OY 114 H 114
Db 61 h 61

RESULT 9
AAR25199
ID AAR25199 standard; Protein; 157 AA.
XX
AC AAR25199;
XX
DT 05-JAN-1993 (first entry)
XX
DE Basic fibroblast growth factor analogue with N-terminal extension.
XX
KW Bone disease; bFGF; osteoporosis; malignant tumour; multiple;
KW myeloma; fracture; mutant.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Peptide 1.11

FT
FT Misc-difference 80 /note-"N-terminal extension"
FT Misc-difference 98 /note-"Cys in known sequence"
FT Misc-difference 98 /note-"Cys in known sequence"
XX
PN EP493737-A.
XX
PD 08-JUL-1992.
XX
PF 17-DEC-1991; 91EP-0121597.
XX
PR 19-DEC-1990; 90JP-0419168.
PR 28-MAY-1991; 91JP-0152517.
XX
PA (KAKE) KAKEN PHARM CO LTD.
XX
PI Hanada K, Hiyama Y, Tamura M;
XX
DR WPI; 1992-227361/28.
XX
XX
PT Bone disease treatment agent comprising basic fibroblast growth
PT factor - useful for treating e.g. traumatic fractures, fatigue
PT fractures and fractures or bone defects accompanied by disease
XX
PS Disclosure; Page 17; 24pp; English.
XX
XX
CC The sequence is that of a human basic fibroblast growth factor (bFGF)
CC analogue comprising substitutions of cysteines by serines at
CC residues 69 and 87 and an N-terminal extension of 1-12 residues.
CC Optionally, the bFGF is used in an agent, as a soln. having physio-
CC logical saline and/or buffer added, or as a gel having at least
CC fibrinogen, aprotinin and thrombin added. The bFGF analogue enables
CC the shortening of the time period for curing various fractures including
CC acceleration of bone formation for bone defect. It also allows the
CC bone strength of united bones to be improved as well as the reduced
CC bone strength accompanied by various diseases, e.g. osteoporosis,
CC malignant tumour, multiple myeloma or nutrition disorders. Traumatic
CC and fatigue induced fractures can also be treated, as can pathological
CC fractures and bone defects.
XX
SQ See also AAR25197, 8.

Query Match 54.8%; Score 339; DB 13; Length 157;
Best Local Similarity 100.0%; Pred. No. 4.7e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAFPPGHEKDPKRLCKNGGFLLRIHPDGRVGVREKSDP 113
Db 1 gtmagstltlpalpdpdgsgafppghkdpkrlcknggffllrhpdpgrvgyvrekssdp 60
OY 114 H 114
Db 61 h 61

RESULT 10
AAG65078
ID AAG65078 standard; Protein; 157 AA.
XX
AC AAG65078;
XX
DT 27-SEP-2001 (first entry)
XX
DE human fibroblast growth factor mutain E89A/L137A.
XX
KW Human; fibroblast growth factor; FGF; site directed mutagenesis;
KW wound healing; ischaemia; peripheral vascular disease; neural injury;
KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutain;
KW mutant; E89A/D101A.
XX

OS Homo sapiens.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 89 /note= "Wild-type Glu substituted by Ala"
FT Misc-difference 137 /note= "Wild-type Leu substituted by Ala"
XX
PN WO200146416-A1.
XX
PD 28-JUN-2001.
XX
PF 22-DEC-1999; 99WO-US30534.
XX
PR 22-DEC-1999; 99WO-US30534.
XX
PA (THRE-) 3-DIMENSIONAL PHARM INC.
XX
PI Springer BA, Pantoliano MW, Sharp CM;
XX
DR WPI; 2001-418062/44.
XX
PT Novel mutein of human fibroblast growth factor comprising substitution
PT of a neutral and/or hydrophobic amino acid for amino acid residue
PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
PT wounds, ulcers
XX
XX
PS Claim 13; Page - : 47pp; English.
XX
CC The sequence is human fibroblast growth factor, hFGF, mutein E89A/L137A.
CC The mutein is produced from a cDNA encoding hFGF that has been engineered
CC to allow site directed mutagenesis of hFGF in order to produce muteins of
CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
CC one or more of the following amino acid residues (numbered from the Gly
CC at position 2 in the wild type hFGF since the Met at position 1
CC is removed when the proteins are expressed in E. coli): glutamate 89, or
CC aspartate 101 or leucine 137. hFGF muteins are useful for healing wounds,
CC stimulating cell division in vivo or in vitro, treating ischaemia,
CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
CC muteins are also useful for treating the above mentioned conditions by
CC gene therapy techniques.
CC Note: The present sequence is not shown in the specification but is
CC derived from the hFGF sequence shown in figure 1:
XX
XX
SQ Sequence 157 AA:

Query Match 54.8%; Score 339; DB 22; Length 157;
Best Local Similarity 100.0%; Pred. No. 4.7e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITLTPALPEDGSGAAPPGRKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDP 113
DB 1 gumaagsitltpalpedgsgaafppghfkdpkrlcycknggfflrhpdgrvdrvrekssdp 60
OY 114 H 114
DB 61 h 61

RESULT 11
AAG65079
ID AAG65079 standard; Protein; 157 AA.
XX
AC AAG65079;
XX
DT 27-SEP-2001 (first entry)
XX
DE human fibroblast growth factor mutein D101A/L137A.
XX
KW Human; fibroblast growth factor; FGF; site directed mutagenesis;

KW wound healing; ischaemia; peripheral vascular disease; neural injury;
KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutein;
KW mutant; D101A/L137A.
XX
OS Homo sapiens.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 101 /note= "Wild-type Asp substituted by Ala"
FT Misc-difference 137 /note= "Wild-type Leu substituted by Ala"
XX
PN WO200146416-A1.
XX
PD 28-JUN-2001.
XX
PF 22-DEC-1999; 99WO-US30534.
XX
PR 22-DEC-1999; 99WO-US30534.
XX
PA (THRE-) 3-DIMENSIONAL PHARM INC.
XX
PI Springer BA, Pantoliano MW, Sharp CM;
XX
DR WPI; 2001-418062/44.
XX
PT Novel mutein of human fibroblast growth factor comprising substitution
PT of a neutral and/or hydrophobic amino acid for amino acid residue
PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
PT wounds, ulcers
XX
XX
PS Claim 14; Page - : 47pp; English.
XX
CC The sequence is human fibroblast growth factor, hFGF, mutein D101A/L137A.
CC The mutein is produced from a cDNA encoding hFGF that has been engineered
CC to allow site directed mutagenesis of hFGF in order to produce muteins of
CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
CC one or more of the following amino acid residues (numbered from the Gly
CC at position 2 in the wild type hFGF since the Met at position 1
CC is removed when the proteins are expressed in E. coli): glutamate 89, or
CC aspartate 101 or leucine 137. hFGF muteins are useful for healing wounds,
CC stimulating cell division in vivo or in vitro, treating ischaemia,
CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
CC muteins are also useful for treating the above mentioned conditions by
CC gene therapy techniques.
CC Note: The present sequence is not shown in the specification but is
CC derived from the hFGF sequence shown in figure 1.
XX
XX
SQ Sequence 157 AA:

Query Match 54.8%; Score 339; DB 22; Length 157;
Best Local Similarity 100.0%; Pred. No. 4.7e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITLTPALPEDGSGAAPPGRKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDP 113
DB 1 gumaagsitltpalpedgsgaafppghfkdpkrlcycknggfflrhpdgrvdrvrekssdp 60
OY 114 H 114
DB 61 h 61

RESULT 12
AAG65080
ID AAG65080 standard; Protein; 157 AA.
XX
AC AAG65080;
XX
DT 27-SEP-2001 (first entry)

```

XX DE human fibroblast growth factor muteln D101Y.
XX
KW Human; fibroblast growth factor; FGF; site directed mutagenesis;
KW wound healing; ischaemia; peripheral vascular disease; neural injury;
KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; muteln;
KW mutant; D101Y.
XX
OS Homo sapiens.
OS Synthetic.
XX
FH Key Location/Qualifiers
FH Misc-difference 101 /note- "Wild-type Asp substituted by Tyr"
FT
FT
FT WO200146416-A1.
XX
XX 28-JUN-2001.
XX
XX 22-DEC-1999; 99WO-US30534.
XX
XX 22-DEC-1999; 99WO-US30534.
XX
XX (THRE-) 3-DIMENSIONAL PHARM INC.
XX
XX Springer BA, Pantoliano MW, Sharp CM;
XX
XX WPI; 2001-418062/44.
XX
XX Novel muteln of human fibroblast growth factor comprising substitution
XX of a neutral and/or hydrophobic amino acid for amino acid residue
XX glutamate 89 or aspartate 101 or leucine 137, useful for treating
XX wounds, ulcers
XX
XX Claim 17; Page - ; 47pp; English.
XX
XX The sequence is human fibroblast growth factor, hFGF, muteln D101Y. The
XX muteln is produced from a cDNA encoding hFGF that has been engineered to
XX allow site directed mutagenesis of hFGF in order to produce mutelns of
XX hFGF with substitutions of a neutral and/or hydrophobic amino acid for
XX one or more of the following amino acid residues (numbered from the Gly
XX at position 2 in the wild type hFGF since the Met at position 1
XX is removed when the proteins are expressed in E. coli): glutamate 89, or
XX aspartate 101 or leucine 137. hFGF mutelns are useful for healing wounds,
XX stimulating cell division in vivo or in vitro, treating ischaemia,
XX peripheral vascular disease, neural injury, gastric ulcer, duodenal
XX ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
XX mutelns are also useful for treating the above mentioned conditions by
XX gene therapy techniques.
XX Note: The present sequence is not shown in the specification but is
XX derived from the hFGF sequence shown in figure 1.
XX
SQ Sequence 157 AA;

```

```

Query Match 54.8%; Score 339; DB 22; Length 157;
Best Local Similarity 100.0%; Pred. NO. 4.7e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

```

OY 54 GTMAAGSITTLPALPEDGSGAAPPFGHFKDKPKRLCYCKNGGFLLRIHPDGRVDGVREKSDP 113
DB 1 gtmaagsittlpalpedgsgaafppghfkdkpkrlycknggffllrihpdgrvdgvreksdp 60

```

```

OY 114 H 114
DB 61 h 61

```

```

RESULT 13
AAG65081
ID AAG65081 standard; Protein; 157 AA.
XX
AC AAG65081;

```

```

XX DT 27-SEP-2001 (first entry)
XX
XX human fibroblast growth factor muteln L137Y.
XX
DE Human; fibroblast growth factor; FGF; site directed mutagenesis;
XX wound healing; ischaemia; peripheral vascular disease; neural injury;
KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; muteln;
KW mutant; L137Y.
XX
XX Homo sapiens.
XX Synthetic.
XX
FH Key Location/Qualifiers
FH Misc-difference 137 /note- "Wild-type Leu substituted by Tyr"
FT
FT
FT WO200146416-A1.
XX
XX 28-JUN-2001.
XX
XX 22-DEC-1999; 99WO-US30534.
XX
XX 22-DEC-1999; 99WO-US30534.
XX
XX (THRE-) 3-DIMENSIONAL PHARM INC.
XX
XX Springer BA, Pantoliano MW, Sharp CM;
XX
XX WPI; 2001-418062/44.
XX
XX Novel muteln of human fibroblast growth factor comprising substitution
XX of a neutral and/or hydrophobic amino acid for amino acid residue
XX glutamate 89 or aspartate 101 or leucine 137, useful for treating
XX wounds, ulcers
XX
XX Claim 18; Page - ; 47pp; English.
XX
XX The sequence is human fibroblast growth factor, hFGF, muteln L137Y. The
XX muteln is produced from a cDNA encoding hFGF that has been engineered to
XX allow site directed mutagenesis of hFGF in order to produce mutelns of
XX hFGF with substitutions of a neutral and/or hydrophobic amino acid for
XX one or more of the following amino acid residues (numbered from the Gly
XX at position 2 in the wild type hFGF since the Met at position 1
XX is removed when the proteins are expressed in E. coli): glutamate 89, or
XX aspartate 101 or leucine 137. hFGF mutelns are useful for healing wounds,
XX stimulating cell division in vivo or in vitro, treating ischaemia,
XX peripheral vascular disease, neural injury, gastric ulcer, duodenal
XX ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
XX mutelns are also useful for treating the above mentioned conditions by
XX gene therapy techniques.
XX Note: The present sequence is not shown in the specification but is
XX derived from the hFGF sequence shown in figure 1.
XX
SQ Sequence 157 AA;

```

```

Query Match 54.8%; Score 339; DB 22; Length 157;
Best Local Similarity 100.0%; Pred. NO. 4.7e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

```

```

OY 54 GTMAAGSITTLPALPEDGSGAAPPFGHFKDKPKRLCYCKNGGFLLRIHPDGRVDGVREKSDP 113
DB 1 gtmaagsittlpalpedgsgaafppghfkdkpkrlycknggffllrihpdgrvdgvreksdp 60

```

```

OY 114 H 114
DB 61 h 61

```

```

RESULT 14
AAG65082
ID AAG65082 standard; Protein; 157 AA.

```


XX AAG65082;
AC 27-SEP-2001 (first entry)
DT human fibroblast growth factor mutetin E89Y/D101Y.
XX
DE Human; fibroblast growth factor; FGF; site directed mutagenesis;
XX wound healing; ischemia; peripheral vascular disease; neural injury;
KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutetin;
KM mutant; E89Y/D101Y.
XX Homo sapiens.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 89 /note- "Wild-type Glu substituted by Tyr"
FT Misc-difference 101 /note- "Wild-type Asp substituted by Tyr"
FT
XX WO200146416-A1.
XX 28-JUN-2001.
XX 22-DEC-1999; 99WO-US30534.
XX 22-DEC-1999; 99WO-US30534.
XX (THRE-) 3-DIMENSIONAL PHARM INC.
XX Springer BA, Pantoliano MW, Sharp CM;
PI WPI; 2001-418062/44.
XX
XX -Novel mutetin of human fibroblast growth factor comprising substitution
PT of a neutral and/or hydrophobic amino acid for amino acid residue
PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
PT wounds, ulcers
XX
XX Claim 19; Page - ; 47pp; English.
XX
XX The sequence is human fibroblast growth factor, hFGF, mutetin E89Y/D101Y.
CC The mutetin is produced from a cDNA encoding hFGF that has been engineered
CC to allow site directed mutagenesis of hFGF in order to produce mutetins of
CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
CC one or more of the following amino acid residues (numbered from the Gly
CC at position 2 in the wild type hFGF since the Met at position 1
CC is removed when the proteins are expressed in E. coli): glutamate 89, or
CC aspartate 101 or leucine 137. hFGF mutetins are useful for healing wounds,
CC stimulating cell division in vivo or in vitro, treating ischemia,
CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
CC mutetins are also useful for treating the above mentioned conditions by
CC gene therapy techniques.
CC Note: The present sequence is not shown in the specification but is
CC derived from the hFGF sequence shown in figure 1.
XX
XX Sequence 157 AA;
SQ

Query Match 54.8%; Score 339; DB 22; Length 157;
Best Local Similarity 100.0%; Pred. No. 4.7e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAAPPFGHFKDKRLVCKNGGFLRIHPDGRVDGVRKSDP 113
DB 1 gTmaagsittlpalpedsyggaafppghfkdkpkrlycknggfflrihpdgrvdgvrksdp 60

OY 114 H 114
DB 61 h 61

RESULT 15
AAG65083
ID AAG65083 standard; Protein; 157 AA.
XX
AC AAG65083;
XX
DT 27-SEP-2001 (first entry)
XX
DE human fibroblast growth factor mutetin E89Y/L137Y.
XX
KW Human; fibroblast growth factor; FGF; site directed mutagenesis;
KW wound healing; ischemia; peripheral vascular disease; neural injury;
KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutetin;
KM mutant; E89Y/D101Y.
XX Homo sapiens.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 89 /note- "Wild-type Glu substituted by Tyr"
FT Misc-difference 137 /note- "Wild-type Leu substituted by Tyr"
FT
XX WO200146416-A1.
XX 28-JUN-2001.
XX 22-DEC-1999; 99WO-US30534.
XX 22-DEC-1999; 99WO-US30534.
XX (THRE-) 3-DIMENSIONAL PHARM INC.
XX Springer BA, Pantoliano MW, Sharp CM;
PI WPI; 2001-418062/44.
XX
XX -Novel mutetin of human fibroblast growth factor comprising substitution
PT of a neutral and/or hydrophobic amino acid for amino acid residue
PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
PT wounds, ulcers
XX
XX Claim 20; Page - ; 47pp; English.
XX
XX The sequence is human fibroblast growth factor, hFGF, mutetin E89Y/L137Y.
CC The mutetin is produced from a cDNA encoding hFGF that has been engineered
CC to allow site directed mutagenesis of hFGF in order to produce mutetins of
CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
CC one or more of the following amino acid residues (numbered from the Gly
CC at position 2 in the wild type hFGF since the Met at position 1
CC is removed when the proteins are expressed in E. coli): glutamate 89, or
CC aspartate 101 or leucine 137. hFGF mutetins are useful for healing wounds,
CC stimulating cell division in vivo or in vitro, treating ischemia,
CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
CC mutetins are also useful for treating the above mentioned conditions by
CC gene therapy techniques.
CC Note: The present sequence is not shown in the specification but is
CC derived from the hFGF sequence shown in figure 1.
XX
XX Sequence 157 AA;
SQ

Query Match 54.8%; Score 339; DB 22; Length 157;
Best Local Similarity 100.0%; Pred. No. 4.7e-22;
Matches 61; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAAPPFGHFKDKRLVCKNGGFLRIHPDGRVDGVRKSDP 113
DB 1 gTmaagsittlpalpedsyggaafppghfkdkpkrlycknggfflrihpdgrvdgvrksdp 60

Sun Jun 2 18:28:49 2002

us-09-642-277a-2.rag

OY 114 H 114
Db 61 h 61

Search completed: June 2, 2002, 18:03:40
Job time: 578 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 17:54:22 ; Search time 61.66 Seconds

(Without alignments)
589.182 Million cell updates/sec

Title: US-09-642-277A-1

Perfect score: 1118

Sequence: 1 MGDRGRGRLPGRLGGR.....GSKTPGQKAILFLMSAKS 210

Scoring table: BIOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 562222 seqs, 172994929 residues 562222

Total number of hits satisfying chosen parameters:

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : SPTREMBL_19:*

- 1: sp_archaea:*
- 2: sp_bacteria:*
- 3: sp_fungi:*
- 4: sp_human:*
- 5: sp_invertebrate:*
- 6: sp_mammal:*
- 7: sp_mhc:*
- 8: sp_organelle:*
- 9: sp_phage:*
- 10: sp_plant:*
- 11: sp_rodent:*
- 12: sp_virus:*
- 13: sp_vertebrate:*
- 14: sp_unclassified:*
- 15: sp_rvivirus:*
- 16: sp_bacteriophage:*
- 17: sp_archaeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	1040	93.0	196	4	P78443	P78443 homo sapien
2	805	72.0	170	11	Q60487	Q60487 cavia porce
3	768	68.7	153	11	Q925A3	Q925A3 mus musculu
4	704	63.0	155	13	Q90Y92	Q90Y92 cynops pyrr
5	682	61.0	130	6	077767	077767 canis famli
6	620	55.5	114	4	000527	000527 homo sapien
7	617	55.2	114	4	Q16443	Q16443 homo sapien
8	585	52.3	111	6	Q9BDX1	Q9BDX1 macaca mula
9	567	50.7	125	13	Q98TD8	Q98TD8 cynops pyrr
10	561	50.2	108	6	Q9N1S7	Q9N1S7 capreolus c
11	490	43.8	109	11	Q925A1	Q925A1 mus musculu
12	486	43.5	112	11	Q925A2	Q925A2 mus musculu
13	478	42.8	146	13	Q07659	Q07659 gallus galli
14	476	42.6	101	13	P79706	P79706 cynops pyrr
15	341	30.5	76	6	Q9N0V2	Q9N0V2 ovis aries
16	292	26.1	106	6	Q9N1S8	Q9N1S8 capreolus c

17	249	22.3	196	13	Q9YH31	Q9YH31 notophthalm
18	245	21.9	124	13	Q90XQ5	Q90XQ5 ambystoma m
19	229	20.5	206	13	Q9YGD8	Q9YGD8 oncorhynch
20	228.5	20.4	191	13	Q9DFC9	Q9DFC9 brachydanio
21	224	20.0	111	13	Q90XQ1	Q90XQ1 ambystoma m
22	218	19.5	208	6	Q95L12	Q95L12 sus scrofa
23	210.5	18.8	212	11	Q9ESI9	Q9ESI9 mus musculu
24	210	18.8	208	13	Q9PVT1	Q9PVT1 xenopus lae
25	206.5	18.5	212	11	Q9EST9	Q9EST9 rattus norv
26	205.5	18.4	207	11	Q9ESI8	Q9ESI8 mus musculu
27	205.5	18.4	207	11	Q9ERQ5	Q9ERQ5 mus musculu
28	203.5	18.2	212	13	Q42407	Q42407 gallus galli
29	203	18.2	208	6	Q95K97	Q95K97 macaca fasc
30	197	17.6	213	6	Q9N1B9	Q9N1B9 ovis aries
31	195.5	17.5	134	13	Q90XQ3	Q90XQ3 ambystoma m
32	193	17.3	208	4	Q96P59	Q96P59 homo sapien
33	193	17.3	302	11	Q9CSX5	Q9CSX5 mus musculu
34	191.5	17.1	186	6	Q95L47	Q95L47 mustela vis
35	189.5	16.9	237	13	Q9IAI6	Q9IAI6 gallus galli
36	189	16.9	112	13	Q90XP9	Q90XP9 ambystoma m
37	188.5	16.9	252	11	Q89096	Q89096 rattus norv
38	188.5	16.9	253	13	Q9IAI5	Q9IAI5 gallus galli
39	185.5	16.6	185	11	Q9ERN5	Q9ERN5 rattus norv
40	183.5	16.4	59	4	Q9UBK1	Q9UBK1 homo sapien
41	180.5	16.1	181	11	Q924B4	Q924B4 rattus norv
42	179.5	16.1	127	4	Q99517	Q99517 homo sapien
43	177	15.8	227	13	Q9DDN0	Q9DDN0 gallus galli
44	175.5	15.7	199	13	Q9IAI3	Q9IAI3 gallus galli
45	174.5	15.6	59	4	Q16089	Q16089 homo sapien

ALIGNMENTS

RESULT	1	PRELIMINARY:	PRT:	196 AA.
ID	P78443			
AC	P78443:			
DT	01-MAY-1997	(TREMBLrel. 03, Created)		
DT	01-MAY-1997	(TREMBLrel. 03, last sequence update)		
DT	01-JUN-2001	(TREMBLrel. 17, last annotation update)		
DE	21 KDA BASIC	FIBROBLAST GROWTH FACTOR (BFGF).		
GN	FGF2.			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.			
OX	NCBI_TaxID=9606;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE-89184522; PubMed-2538817;			
RA	Watson R., Anthony F., Pickett M., Lambden P., Masson G.M.,			
RA	Thomas E.J.;			
RT	*Reverse transcription with nested polymerase chain reaction shows			
RT	expression of basic fibroblast growth factor transcripts in human			
RT	granulosa and cumulus cells from in vitro fertilisation patients.*;			
RL	Biochem. Biophys. Res. Commun. 187:1227-1231(1992).			
DR	EMBL: J04513; AAA52532.1; -			
DR	EMBL: S47380; AAD13853.1; -			
DR	HSSP: P09038; 1BFF.			
DR	InterPro: IPR002209; HBGF_FGF.			
DR	InterPro: IPR002348; IL1_HBGF.			
DR	Pfam: PF00167; FGF_1.			
DR	PRINTS: PR00262; IL1HBGF.			
DR	ProDom: PD000831; HBGF_FGF; 1.			
DR	SMART: SM00442; FGF; 1.			

DR PROSITE; PS00247; HBGF_FGF; 1.
SQ SEQUENCE 196 AA; 21203 MM; D6B5447137E60343 CRC64;

Query Match 93.0%; Score 1040; DB 4; Length 196;
Best Local Similarity 99.5%; Pred. No. 8.2e-87;
Matches 195; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 15 IGGRRGRAPERVGRGRGTAPRAAPARAGSRPGAGTMAAGSITTLPALPEDGSG 74
:|||||
DB 1 MGGRRGRAPERVGRGRGTAPRAAPARAGSRPGAGTMAAGSITTLPALPEDGSG 60
OY 75 AFPPGHFKDPKRLCKNGGFFLRHPDGRVGVREKSDPHIKLOLAERGVVSIKGVCA 134
:|||||
DB 61 AFPPGHFKDPKRLCKNGGFFLRHPDGRVGVREKSDPHIKLOLAERGVVSIKGVCA 120
OY 135 NRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKT 194
:|||||
DB 121 NRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKT 180
OY 195 GPGOKAILFLPMSAKS 210
:|||||
DB 181 GPGOKAILFLPMSAKS 196

RESULT 2

ID Q60487 PRELIMINARY; PRT; 170 AA.
AC -Q60487;
DT 01-NOV-1996 (Tremblrel. 01, Created)
DT 01-MAY-2000 (Tremblrel. 13, Last sequence update)
DT 01-JUN-2001 (Tremblrel. 17, Last annotation update)
DE FIBROBLAST GROWTH FACTOR 2 (FGF-2) (FIBROBLAST GROWTH FACTOR, BASIC)
DE (HBGF) (HEPARIN-BINDING GROWTH FACTOR 2) (HBGF-2) (PROSTATROPIN)
DE (PROSTATIC GROWTH FACTOR) (FRAGMENTS).
GN FGF2.
OS Cavia porcellus (Guinea pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Hystriognathii; Cavidae; Cavia.
OX NCBI_Taxid-10141;
RN [1]
RP SEQUENCE OF 53-170 FROM N.A.
RC TISSUE-PROSTATE;
RA Ricciardelli C.;
RL Submitted (JAN-1996) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE OF N-TERMINUS, PARTIAL SEQUENCE, AND ALTERNATIVE SPLICING.
RX MEDLINE-89273588; PubMed-2730645;
RA Sommer A., Moscatelli D., Rifkin D.B.;
RT "An amino-terminally extended and post-translationally modified form
of a 25KD basic fibroblast growth factor.";
RL Biochem. Biophys. Res. Commun. 160:1267-1274(1989).
RN [3]
RP PARTIAL SEQUENCE, AND METHYLATION.
RX MEDLINE-91322114; PubMed-1713785;
RA Burgess W.H., Bizik J., Mehman T., Quarto N., Rifkin D.B.;
RT "Direct evidence for methylation of arginine residues in high
molecular weight forms of basic fibroblast growth factor.";
RL Cell Regul. 2:87-93(1991).
RN [4]
RP CHARACTERIZATION.
RC TISSUE-BRAIN;
RX MEDLINE-87289686; PubMed-3475702;
RA Moscatelli D., Joseph-Silverstein J., Manojas R., Rifkin D.B.;
RT "Mr 25,000 heparin-binding protein from guinea pig brain is a high
molecular weight form of basic fibroblast growth factor.";
RL Proc. Natl. Acad. Sci. U.S.A. 84:5778-5782(1987).
CC -1- FUNCTION: WIDE-SPECTRUM MITOGENIC, ANGIOGENIC, AND NEUTROPHILIC
FACTOR. IMPLICATED IN A MULTITUDE OF PHYSIOLOGIC AND PATHOLOGIC
PROCESSES, INCLUDING LIMB DEVELOPMENT, ANGIOGENESIS, WOUND
HEALING, AND TUMOR GROWTH. POTENT MITOGEN AND CHEMOATTRACTANT FOR
MESENCHYME-DERIVED CELLS. IMPLICATED IN THE DIFFERENTIATION,
PROLIFERATION, AND MAINTENANCE OF CELLS IN THE CENTRAL NERVOUS

CC SYSTEM AND IN BONE FORMATION. MAJOR ANGIOGENIC FACTOR THAT ALSO
CC ACTIVATES TUMOR NEOVASCULARIZATION (BY SIMILARITY).
CC -1- SUBUNIT: FORMS A QUATERNARY COMPLEX WITH TWO FGFR1 AND AT LEAST
CC ONE HEPARAN SULFATE (BY SIMILARITY).
CC -1- ALTERNATIVE PRODUCTS: AT LEAST TWO ISOFORMS; 18 KDA AND 25 KDA
CC (SHOWN HERE); MAY BE PRODUCED BY USE OF ALTERNATIVE TRANSLATION
CC INITIATION SITES. BOTH FORMS ARE ACTIVE.
CC -1- PTM: THE N-TERMINAL OF ISOFORM 18 KDA IS BLOCKED (PROBABLE).
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -1- CAUTION: THIS IS A CONCEPTUAL TRANSLATION; MANY FRAMESHIFTS WERE
CC INTRODUCED FROM RESIDUES 77, 88, 93 AND 149 DOWNWARD TO EXTEND THE
CC SIMILARITY TO THE HUMAN SEQUENCE AS WELL AS ON THE BASIS OF
CC PARTIAL AMINO-ACID SEQUENCING.

DR EMBL; L75974; AAA85394.1; ALT_FRAME.
DR HSSP; P09038; 1BLA.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF_1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Vascularization; Heparin-binding;
KW Alternative initiation; Methylation; Phosphorylation;
KW Developmental protein.

FT NON_TER 1 1
FT NON_CONS 15 16
FT CHAIN <1 170
FT CHAIN 22 170
FT INIT_MET 22 22
FT DOMAIN 11 14
FT NON_CONS 50 51
FT SITE 61 63
FT SITE 103 105
FT BINDING 50 51
FT BINDING 105 105
FT BINDING 143 159
FT MOD_RES 4 4
FT MOD_RES 6 6
FT MOD_RES 8 8
FT MOD_RES 88 88
FT MOD_RES 136 136
SQ SEQUENCE 170 AA; 18354 MM; F36BDEC736E5FEBC CRC64;

Query Match 72.0%; Score 805; DB 11; Length 170;
Best Local Similarity 85.3%; Pred. No. 1.5e-65;
Matches 157; Conservative 4; Mismatches 9; Indels 14; Gaps 2;

OY 27 VGGRRGRGTAPRAAPARAGSRPGAGTMAAGSITTLPALPEDGSGAFPPGHFKDPK 86
:|||||
DB 1 VGGRRGRGTAA-----AARREGGAMAAGSITTLPALPEDGGGAFAPGHFKDP-- 50
OY 87 LYCKNGGFFLRHPDGRVGVREKSDPHIKLOLAERGVVSIKGVCANRYLAMKEDGRL 146
:|||||
DB 51 ---NGGFFLRHPDGRVGVREKSDPHIKLOLAERGVVSIKGVCANRYLAMKEDGRL 106
OY 147 LASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPGRKAILFLPM 206
:|||||
DB 107 LASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPGRKAILFLPM 166
OY 207 SAKS 210
:|||||
DB 167 SAKS 170

RESULT 3

ID Q925A3 PRELIMINARY; PRT; 153 AA.
AC Q925A3;
DT 01-DEC-2001 (Tremblrel. 19, Created)
DT 01-DEC-2001 (Tremblrel. 19, Last sequence update)
DT 01-DEC-2001 (Tremblrel. 19, Last annotation update)


```
RESULT 6
ID 000527 PRELIMINARY; PRT; 114 AA.
AC 000527;
DT 01-JAN-1998 (TREMBlrel. 05, Created)
DT 01-JAN-1999 (TREMBlrel. 09, Last sequence update)
DT 01-JUN-2001 (TREMBlrel. 17, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
GN FGF-2 OR FGF2.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=BLOOD;
RA Handschug K., Glaeser C.;
RT "Mutations in the 5' untranslated region of the FGF-2 gene: transition
RT G to A on position 19 and transversion G to C on position 97.";
RL Submitted (NOV-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; Y13468; CAA73868.1;
DR EMBL; AJ250952; CAB61690.1;
DR HSSP; P09038; 1BF.
DR InterPro; IPR002209; HBGF_FGF.
DR Pfam; PF00167; FGF; 1.
DR ProDom; PD000831; HBGF_FGF; 1.
FT NON_TER 114 114
SQ SEQUENCE 114 AA; 11688 MW; 98DC6381C1960CID CRC64;

Query Match 55.5%; Score 620; DB 4; Length 114;
Best Local Similarity 100.0%; Pred. No. 5.9e-49;
Matches 114; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDRGRALPGRLGGRGRAPERVGGRGRTAAPRAAPARGSRPAGTMAAGS 60
DB 1 MGDRGRALPGRLGGRGRAPERVGGRGRTAAPRAAPARGSRPAGTMAAGS 60

QY 61 ITTLPALEDGSGAAPPFGHFKDKRLYCKNGGFLRIHPDGRVDGVRKSDPH 114
DB 61 ITTLPALEDGSGAAPPFGHFKDKRLYCKNGGFLRIHPDGRVDGVRKSDPH 114

RESULT 7
ID 016443 PRELIMINARY; PRT; 114 AA.
AC 016443;
DT 01-NOV-1996 (TREMBlrel. 01, Created)
DT 01-NOV-1996 (TREMBlrel. 01, Last sequence update)
DT 01-JUN-2001 (TREMBlrel. 17, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Homiidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RC MEDLINE-92152654; PubMed-1785797;
RA Florkiewicz R.Z., Shibata F., Barankiewicz T., Baird A.,
RA Gonzalez A.M., Florkiewicz E., Shah N.;
RT "Basic fibroblast growth factor gene expression.";
RL Ann. N. Y. Acad. Sci. 638:109-126(1991).
DR EMBL; S81809; AAB21432.2;
DR HSSP; P09038; 1BF.
DR InterPro; IPR002209; HBGF_FGF.
DR Pfam; PF00167; FGF; 1.
```

```
DR ProDom; PD000831; HBGF_FGF; 1.
FT NON_TER 1 1
FT NON_TER 114 114
SQ SEQUENCE 114 AA; 11670 MW; 88DCA49C774D61AA CRC64;

Query Match 55.2%; Score 617; DB 4; Length 114;
Best Local Similarity 99.1%; Pred. No. 1.1e-48;
Matches 113; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDRGRALPGRLGGRGRAPERVGGRGRTAAPRAAPARGSRPAGTMAAGS 60
DB 1 LGDRGRALPGRLGGRGRAPERVGGRGRTAAPRAAPARGSRPAGTMAAGS 60

QY 61 ITTLPALEDGSGAAPPFGHFKDKRLYCKNGGFLRIHPDGRVDGVRKSDPH 114
DB 61 ITTLPALEDGSGAAPPFGHFKDKRLYCKNGGFLRIHPDGRVDGVRKSDPH 114

RESULT 8
ID 09BDX1 PRELIMINARY; PRT; 111 AA.
AC 09BDX1;
DT 01-JUN-2001 (TREMBlrel. 17, Created)
DT 01-JUN-2001 (TREMBlrel. 17, Last sequence update)
DT 01-DEC-2001 (TREMBlrel. 19, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
OS Macaca mulatta (Rhesus macaque).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Cercopitheidae;
OC Cercopitheidae; Macaca.
OX NCBI_TaxID=9544;
RN [1]
RP SEQUENCE FROM N.A.
RA Sekhon H.S., Keller J.K., Spindel E.R.;
RT "Alterations in Collagen and Elastin Gene Expression in Fetal
RT Pulmonary Vessels in Monkeys Following Prenatal Nicotine Exposure: A
RT Possible Role of alpha7 Nicotinic Acetylcholine Receptor in Persistent
RT Pulmonary Hypertension.";
RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF251270; AAK37962.1;
DR HSSP; P09038; 2FGF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PRO0262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
FT NON_TER 1 1
FT NON_TER 111 111
SQ SEQUENCE 111 AA; 12633 MW; EC0967A5261F5487 CRC64;

Query Match 52.3%; Score 585; DB 6; Length 111;
Best Local Similarity 100.0%; Pred. No. 8.6e-46;
Matches 111; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 98 IHPDGRVDGVRKSDPHIKIQAEERGVSVISIKVCANRYIAKEDGRLASKCVTDEC 157
DB 1 IHPDGRVDGVRKSDPHIKIQAEERGVSVISIKVCANRYIAKEDGRLASKCVTDEC 157

QY 158 FFERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPCKAILFLPMSA 208
DB 61 FFERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPCKAILFLPMSA 111

RESULT 9
ID 098TD8 PRELIMINARY; PRT; 125 AA.
AC 098TD8;
DT 01-JUN-2001 (TREMBlrel. 17, Created)
DT 01-JUN-2001 (TREMBlrel. 17, Last sequence update)
```


01-DEC-2001 (Tremblrel. 19, last annotation update)
 DE FIBROBLAST GROWTH FACTOR-2 (FRAGMENT).
 GN FGF-2.
 OS Cynops pyrrhogaster (Japanese common newt).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Amphibia; Batrachia; Caudata; Salamandroidae; Salamandridae; Cynops.
 OX NCBI_TaxID=8330;
 RN [1]
 RP SEQUENCE FROM N.A.
 RA Mizuno N., Hayashi T., Kondoh H., Okamoto M.;
 RT "Cynops fibroblast growth factor-2."
 RL Submitted (OCT-2000) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AB049625; BAB40835.1; .
 DR HSSP; P09038; 1BF.
 DR InterPro; IPR002209; HBG_FGF.
 DR InterPro; IPR002348; IL1_HBG.
 DR Pfam; PF00167; FGF; 1.
 DR PRINTS; PR00262; IL1HBGF.
 DR ProDom; PD000831; HBG_FGF; 1.
 DR SMART; SM00442; FGF; 1.
 DR PROSITE; PS00247; HBG_FGF; 1.
 FT NON_TER 1
 SQ SEQUENCE 125 AA; 14244 MW; 5C27F41DC6E60C13 CRC64;

Query Match
 Best Local Similarity 50.7%; Score 567; DB 13; Length 125;
 Matches 108; Conservative 7; Mismatches 9; Indels 0; Gaps 0;

OY 87 LYCKNGEFLRIHPDGRVDGVRKSDPHIKLOAEERGVSIGVCANRYLAMKEDGRL 146
 |||||
 Db 2 LYCKNGEFLRINSDDGKVDGAREKSDSYIKLOAEERGVSIGVCANRYLAMKEDGRL 61
 |||||

OY 147 LASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPQKAILFLPM 206
 :||:|||||
 Db 62 MALKWITDECFEERLESNNYNTYRSRKYSDWYVALKRTGQYKNGSKTGAGOKAILFLPM 121
 |||||

OY 207 SAKS 210
 |||||
 Db 122 SAKS 125

RESULT 10
 O9N1S7 PRELIMINARY; PRT; 108 AA.
 AC O9N1S7;
 DT 01-OCT-2000 (Tremblrel. 15, Created)
 DT 01-OCT-2000 (Tremblrel. 15, last sequence update)
 DT 01-DEC-2001 (Tremblrel. 19, last annotation update)
 DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).
 GN BGF.
 OS Capreolus capreolus (Roe deer).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Cervoidae;
 OC Cervidae; Odocoileinae; Capreolus.
 OX NCBI_TaxID=9858;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC TISSUE-TESTIS;
 RX MEDLINE-20532861; PubMed-11078967;
 RA Wagener A., Blotner S., Goritz F., Fickel J.;
 RT "Detection of growth factors in the testis of roe deer (Capreolus capreolus)."
 RL Anlm. Reprod. Sci. 64:65-75(2000).
 DR EMBL; AF152587; AAF73226.1; .
 DR HSSP; P09038; 4FGF.
 DR InterPro; IPR002209; HBG_FGF.
 DR InterPro; IPR002348; IL1_HBG.
 DR Pfam; PF00167; FGF; 1.
 DR PRINTS; PR00262; IL1HBGF.
 DR ProDom; PD000831; HBG_FGF; 1.
 DR SMART; SM00442; FGF; 1.
 DR PROSITE; PS00247; HBG_FGF; 1.

FT NON_TER 1
 FT NON_TER 108
 SQ SEQUENCE 108 AA; 12399 MW; 6BC7B7244214567E CRC64;

Query Match
 Best Local Similarity 50.2%; Score 561; DB 6; Length 108;
 Matches 106; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

OY 97 RIHPDGRVDGVRKSDPHIKLOAEERGVSIGVCANRYLAMKEDGRLASKCVTDEC 156
 |||||
 Db 1 RIHPDGRVDGVRKSDPHIKLOAEERGVSIGVCANRYLAMKEDGRLASKCVTDEC 60
 |||||

OY 157 FFEERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPQKAILFL 204
 |||||
 Db 61 FFEERLESNNYNTYRSRKYSSWYVALKRTGQYKLGPKTGPQKAILFL 108
 |||||

RESULT 11
 O925A1 PRELIMINARY; PRT; 109 AA.
 AC O925A1;
 DT 01-DEC-2001 (Tremblrel. 19, Created)
 DT 01-DEC-2001 (Tremblrel. 19, last sequence update)
 DT 01-DEC-2001 (Tremblrel. 19, last annotation update)
 DE FIBROBLAST GROWTH FACTOR-2.
 GN FGF2.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OX NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=FVB/N;
 RA Dirks R.P., Griep A.E.;
 RT "Multiple novel variants of fibroblast growth factor 2 transcripts are expressed in mouse embryos."
 RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
 DR EMBL; AY027558; AAK52310.1; .
 DR PROSITE; PS00247; HBG_FGF; 1.
 SQ SEQUENCE 109 AA; 12388 MW; 61074ADE3303C860 CRC64;

Query Match
 Best Local Similarity 43.8%; Score 490; DB 11; Length 109;
 Matches 94; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 115 IKLOAEERGVSIGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRK 174
 |||||
 Db 14 IKLOAEERGVSIGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRK 73
 |||||

OY 175 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
 :||:|||||
 Db 74 YSSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 109
 |||||

RESULT 12
 O925A2 PRELIMINARY; PRT; 112 AA.
 AC O925A2;
 DT 01-DEC-2001 (Tremblrel. 19, Created)
 DT 01-DEC-2001 (Tremblrel. 19, last sequence update)
 DT 01-DEC-2001 (Tremblrel. 19, last annotation update)
 DE FIBROBLAST GROWTH FACTOR 2.
 GN FGF2.
 OS Mus musculus (Mouse).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
 OX NCBI_TaxID=10090;
 RN [1]
 RP SEQUENCE FROM N.A.
 RC STRAIN=FVB/N;
 RA Dirks R.P., Griep A.E.;
 RT "Multiple novel variants of fibroblast growth factor 2 transcripts are

RT expressed in mouse embryos.";
RL Submitted (FEB-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL: AY027557; AAK52309.1;
SQ SEQUENCE 112 AA; 12725 MW; B00557ABE0257CCB CRC64;

Query Match 43.5%; Score 486; DB 11; Length 112;
Best Local Similarity 97.9%; Pred. No. 8.6e-37;
Matches 93; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

OY 116 KLOLAEEGVSTKGCANRYLAMKEDGRILASKCVTDECFERLESNNYRSRKY 175
DB 18 KLOLAEEGVSTKGCANRYLAMKEDGRILASKCVTECFERLESNNYRSRKY 77

OY 176 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 78 SSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 112

RESULT 13
ID 007659 PRELIMINARY; PRT; 146 AA.

AC 007659;
DT 01-NOV-1996 (Tremblrel. 01, Created)
DT 01-NOV-1996 (Tremblrel. 01, Last sequence update)
DT 01-JUN-2001 (Tremblrel. 17, Last annotation update)
DE FIBROBLAST GROWTH FACTOR.

OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031;

RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=93246053; PubMed-7683281;
RA Borja A.Z., Zeller R., Meijers C.;
RT "Expression of alternatively spliced bFGF first coding exons and
RT antisense mRNAs during chicken embryogenesis.";
RL Dev. Biol. 157:110-118(1993).

RN [2]
RP SEQUENCE OF 52-85 FROM N.A.
RX MEDLINE=90382254; PubMed-2401202;
RA Mitrani E., Gruenbaum Y., Shohat H., Ziv T.;
RT "Fibroblast growth factor during mesoderm induction in the early chick
RT embryo.";
RL Development 109:387-393(1990).

DR EMBL: M95706; AAA48616.1;
DR EMBL: X56804; CAA40139.1;
DR HSSP: P09038; 2BFR.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; IL1HBGF.
DR ProDom: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.
DR PROSITE: PS00247; HBGF_FGF; 1.
SQ SEQUENCE 146 AA; 16182 MW; A7CB97BCB456E247 CRC64;

Query Match 42.8%; Score 478; DB 13; Length 146;
Best Local Similarity 57.2%; Pred. No. 6.3e-36;
Matches 103; Conservative 11; Mismatches 22; Indels 44; Gaps 4;

OY 32 RGRGTAPRA-APARGSRPGPAGTMAAGSITTLPALPEDGSGAFPGHFKDPKRLYCK 90
DB 10 RGTAVGAPRVMSPPAQ-----PVPSLSPDGV----- 36

OY 91 NGGFRLRHDPDGRVREKSDPHIKLOAEERGVSTKGCANRYLAMKEDGRILASK 150
DB 37 ---LWERYVRPDERVSAM-----VKLOAEERGVSTKGCANRYLAMKEDGRILASK 86

OY 151 CVDCECFERLESNNYRSRKYTSVYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210

DB 87 CATECECFERLESNNYRSRKYSDWYVALKRTGQYKPGPKTGPQKAILFLPMSAKS 146

RESULT 14

ID P79706 PRELIMINARY; PRT; 101 AA.

AC P79706;
DT 01-MAY-1997 (Tremblrel. 03, Created)
DT 01-MAY-1997 (Tremblrel. 03, Last sequence update)
DT 01-DEC-2001 (Tremblrel. 19, Last annotation update)
DE BASIC FGF (FRAGMENT).

OS Cynops pyrrhogaster (Japanese common newt).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Caudata; Salamandridae; Cynops.
OX NCBI_TaxID=8330;

RN [1]
RP SEQUENCE FROM N.A.

RA Suzuki A.S., Tabata T., Sakaguchi K., Takabatake T., Takeshima K.,
RA Kaneda T.;
RT "Serial expression of the genes in a mesodermalizing ectoderms of
RT early Cynops gastrula.";
RL Submitted (NOV-1996) to the EMBL/GenBank/DBJ databases.

DR EMBL: D89443; BAA13958.1;
DR HSSP: P09038; 4FGF.
DR InterPro: IPR002209; HBGF_FGF.
DR InterPro: IPR002348; IL1_HBGF.
DR Pfam: PF00167; FGF; 1.
DR PRINTS: PR00262; IL1HBGF.
DR ProDom: PD000831; HBGF_FGF; 1.
DR SMART: SM00442; FGF; 1.

DR PROSITE: PS00247; HBGF_FGF; 1.
FT NON_TER 1
FT NON_TER 1
SQ SEQUENCE 101 AA; 11907 MW; 74A16C866C1F457A CRC64;

Query Match 42.6%; Score 476; DB 13; Length 101;
Best Local Similarity 87.1%; Pred. No. 6.1e-36;
Matches 88; Conservative 7; Mismatches 6; Indels 0; Gaps 0;

OY 84 PKRLCKNGGFRLRHDPDGRVREKSDPHIKLOAEERGVSTKGCANRYLAMKED 143
DB 1 PKRLCKNGGFRLRHDPDGRVREKSDPHIKLOAEERGVSTKGCANRYLAMKED 60

OY 144 GRLLASKCVTDECFERLESNNYRSRKYTSVYVALKR 184
DB 61 GRLLASKCVTDECFERLESNNYRSRKYTSVYVALKR 101

RESULT 15

ID Q9NOV2 PRELIMINARY; PRT; 76 AA.

AC Q9NOV2;
DT 01-OCT-2000 (Tremblrel. 15, Created)
DT 01-OCT-2000 (Tremblrel. 15, Last sequence update)
DT 01-DEC-2001 (Tremblrel. 19, Last annotation update)
DE BASIC FIBROBLAST GROWTH FACTOR (FRAGMENT).

OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC NCBI_TaxID=9940;

RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-FETAL PLACENTAL ARTERY;
RA Zheng J., Tsol S.C., Magness R.R.;
RT "Growth factor expression in ovine fetal placental artery endothelial
RT cells.";
RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.

DR EMBL: AF250027; AAF65566.1;

DR HSSP; P09038; 4FGF.
 DR InterPro; IPR002209; HBGF_FGF.
 DR InterPro; IPR002348; IL1_HBGF.
 DR Pfam; PF00167; FGF; 1.
 DR PRINTS; PR00262; IL1HBGF.
 DR PRODOM; PD000831; HBGF_FGF; 1.
 DR SMART; SM00442; FGF; 1.
 DR PROSITE; PS00247; HBGF_FGF; 1.
 FT NON_TER 1
 FT NON_TER 76
 SQ SEQUENCE 76 AA; 8796 MW; 7D984E2F97453B20 CRC64;

Query Match 30.5%; Score 341; DB 6; Length 76;
 Best Local Similarity 88.0%; Pred. No. 7.9e-24;
 Matches 66; Conservative 1; Mismatches 0; Indels 8; Gaps 1;

OY 112 DPHIKIQIAEERGVSIGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYR 171
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 Db 1 DPHIKIQIAEERGVSIGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNNTYR 60
 ||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 OY 172 SRKY-----TSW 178
 ||||| 1:1
 Db 61 SRKYSQLVCGTETNW 75

Search completed: June 2, 2002, 18:04:49
 Job time: 627 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 18:01:12 ; Search time 20.21 seconds
(without alignments)
402.331 Million cell updates/sec

Title: US-09-642-277A-1
Perfect score: 1118
Sequence: 1 MGDRGRALPGRLGRGR.....GSKTGPGRKALLFLPMSAKS 210

Scoring table: BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 105224 seqs, 38719550 residues
Total number of hits satisfying chosen parameters: 105224

Minimum DB seq length: 0
Maximum DB seq length: 200000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : Swissprot_40:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	826	73.9	155	1 FGF2_HUMAN	P09038 homo sapien
2	817	73.1	155	1 FGF2_BOVIN	P03969 bos taurus
3	811	72.5	155	1 FGF2_SHEEP	P20003 ovis aries
4	798.5	71.4	154	1 FGF2_RAT	P13109 rattus norv
5	783.5	70.1	154	1 FGF2_MOUSE	P15655 mus musculu
6	760.5	68.0	156	1 FGF2_MONDO	P48798 monodelphis
7	759	67.9	158	1 FGF2_CHICK	P48800 gallus gall
8	738	66.0	137	1 FGF2_RABIT	P48799 oryctolagus
9	687	61.4	155	1 FGF2_XENLA	P12226 xenopus lae
10	418.5	37.4	155	1 FGF1_MESAU	P34004 mesocricetu
11	410.5	36.7	155	1 FGF1_CHICK	P19596 gallus gall
12	409.5	36.6	155	1 FGF1_HUMAN	P05230 homo sapien
13	404.5	36.2	155	1 FGF1_MOUSE	P10935 mus musculu
14	403.5	36.1	152	1 FGF1_PIG	P20002 sus scrofa
15	393.5	35.2	155	1 FGF1_BOVIN	P03968 bos taurus
16	278.5	24.9	194	1 FGF4_CHICK	P48804 gallus gall
17	272.5	24.4	206	1 FGF4_HUMAN	P08620 homo sapien
18	271	24.2	256	1 FGF3_BRARE	P48802 brachydanio
19	267.5	23.9	206	1 FGF4_BOVIN	P48803 bos taurus
20	265.5	23.7	266	1 FGF5_RAT	P48807 rattus norv
21	263	23.5	208	1 FGF6_MOUSE	P21658 mus musculu
22	262	23.4	264	1 FGF5_MOUSE	P15656 mus musculu
23	261	23.3	208	1 FGF6_HUMAN	P10767 homo sapien
24	259.5	23.2	202	1 FGF4_MOUSE	P11403 mus musculu
25	255.5	22.9	268	1 FGF5_HUMAN	P12034 homo sapien
26	251	22.5	220	1 FGF3_CHICK	P48801 gallus gall
27	243.5	21.8	239	1 FGF3_HUMAN	P11487 homo sapien
28	242.5	21.7	245	1 FGF3_MOUSE	P05524 mus musculu
29	241	21.6	237	1 FGF3_XENLA	P36386 xenopus lae
30	239	21.4	187	1 FGF3_XENLA	P48805 xenopus lae
31	234.5	21.0	192	1 FGF8_XENLA	P48806 xenopus lae
32	219	19.6	208	1 FGF9_HUMAN	P31371 homo sapien
33	219	19.6	208	1 FGF9_MOUSE	P54130 mus musculu

34	219	19.6	208	1 FGF9_RAT	P36364 rattus norv
35	218.5	19.5	211	1 FGF8_HUMAN	Q9np95 homo sapien
36	216.5	19.4	209	1 FGF9_XENLA	Q91875 xenopus lae
37	210.5	18.8	194	1 FGF7_CANFA	P79150 canis famli
38	209.5	18.7	194	1 FGF7_MOUSE	P36363 mus musculu
39	207.5	18.6	194	1 FGF7_HUMAN	P21781 homo sapien
40	207.5	18.6	194	1 FGF7_SHEEP	P48808 ovis aries
41	206.5	18.5	207	1 FGF8_RAT	O54769 rattus norv
42	205.5	18.4	207	1 FGF8_HUMAN	O43320 homo sapien
43	205	18.3	215	1 FGF4_RAT	P70492 rattus norv
44	204.5	18.3	194	1 FGF7_PIG	Q9n198 sus scrofa
45	203	18.2	208	1 FGF4_HUMAN	O15520 homo sapien

ALIGNMENTS

RESULT	1	STANDARD	PRT	155 AA
AC	FGF2_HUMAN			
AC	P09038;			
DT	01-NOV-1988 (Rel. 09, Created)			
DT	01-NOV-1988 (Rel. 09, Last sequence update)			
DT	01-MAR-2002 (Rel. 41, Last annotation update)			
DE	Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).			
GN	FGF2 OR FGF8.			
OS	Homo sapiens (Human).			
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;			
OC	Mammalia; Eutheria; Primates; Catarrhini; Homnidae; Homo.			
OX	NCBI_TaxID=9606;			
RN	[1]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE-87053817; PubMed-3780670;			
RA	Abraham J.A.; Whang J.L.; Tumorlo A.; Mergia A.; Friedman J.,			
RA	Gospodarowicz D.; Fildes J.C.;			
RT	"Human basic fibroblast growth factor: nucleotide sequence and genomic organization."			
RL	EMBO J. 5:2523-2528(1986).			
RN	[2]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE-87217066; PubMed-3472745;			
RA	Abraham J.A.; Whang J.L.; Tumorlo A.; Mergia A.; Fildes J.C.;			
RT	"Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells."			
RL	Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).			
RN	[3]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE-87213238; PubMed-3579930;			
RA	Sommer A.; Brewer M.T.; Thompson R.C.; Moscatelli D.; Presta M.,			
RA	Ritkin D.B.;			
RT	"A form of human basic fibroblast growth factor with an extended amino terminus."			
RL	Biochem. Biophys. Res. Commun. 144:543-550(1987).			
RN	[4]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE-87162468; PubMed-2435575;			
RA	Kurokawa T.; Sasada R.; Iwane M.; Igarashi K.;			
RT	"Cloning and expression of cDNA encoding human basic fibroblast growth factor."			
RL	FEBS Lett. 213:189-194(1987).			
RN	[5]			
RP	SEQUENCE FROM N.A.			
RX	MEDLINE-89184522; PubMed-2538817;			
RA	Prats H.; Kaghad M.; Prats A.C.; Riagsbrun M.; Lelias J.M.,			
RA	Ilauzun P.; Chalon P.; Tauber J.P.; Amalric F.; Smith J.A.,			
RT	Caput D.;			
RT	"High molecular mass forms of basic fibroblast growth factor are initiated by alternative CUG codons."			
RL	Proc. Natl. Acad. Sci. U.S.A. 86:1836-1840(1989).			
RN	[6]			
RP	SEQUENCE OF			
RX	MEDLINE-86275260; PubMed-3732516;			

RA Gautschi P., Frater-Schroeder M., Boehlen P.;
RT "Partial molecular characterization of endothelial cell mitogens from
RT human brain: acidic and basic fibroblast growth factors.";
RL FEBS Lett. 204:203-207(1986).
RN [7]
RP SEQUENCE OF 10-39.
RX MEDLINE=86186784; PubMed=3964259;
RA Gimenez-Gallego G., Conn G., Hatcher V.B., Thomas K.A.;
RT "Human brain-derived acidic and basic fibroblast growth factors:
RT amino terminal sequences and specific mitogenic activities.";
RL Biochem. Biophys. Res. Commun. 135:541-548(1986).
RN [8]
RP SEQUENCE OF 2-22.
RX MEDLINE=87156686; PubMed=2435284;
RA Story M.T., Esch F., Shimasaki S., Sasse J., Jacobs S.C., Lawson R.K.;
RT "Amino-terminal sequence of a large form of basic fibroblast growth
RT factor isolated from human benign prostatic hyperplastic tissue.";
RL Biochem. Biophys. Res. Commun. 142:702-709(1987).
RN [9]
RP X-RAY CRYSTALLOGRAPHY (2.2 ANGSTROMS).
RX MEDLINE=91195367; PubMed=1707542;
RA Eriksson A.E., Cousens L.S., Weaver L.H., Matthews B.W.;
RT "Three-dimensional structure of human basic fibroblast growth
RT factor.";
RL Proc. Natl. Acad. Sci. U.S.A. 88:3441-3445(1991).
RN [10]
RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
RX MEDLINE=94004464; PubMed=7691311;
RA Eriksson A.E., Cousens L.S., Matthews B.W.;
RT "Refinement of the structure of human basic fibroblast growth factor
RT at 1.6-A resolution and analysis of presumed heparin binding sites by
RL selenate substitution.";
RN Protein Sci. 2:1274-1284(1993).
RN [11]
RP X-RAY CRYSTALLOGRAPHY (1.8 ANGSTROMS).
RX MEDLINE=91195368; PubMed=1849658;
RA Zhang J., Cousens L.S., Barr P.J., Sprang S.R.;
RT "Three-dimensional structure of human basic fibroblast growth factor,
RT a structural homolog of interleukin 1 beta.";
RL Proc. Natl. Acad. Sci. U.S.A. 88:3446-3451(1991).
RN [12]
RP X-RAY CRYSTALLOGRAPHY (1.6 ANGSTROMS).
RX MEDLINE=9212151; PubMed=1769963;
RA Ago H., Kitagawa Y., Fujishima A., Matsuura Y., Katsube Y.;
RT "Crystal structure of basic fibroblast growth factor at 1.6-A
RT resolution.";
RL J. Biochem. 110:360-363(1991).
RN [13]
RP X-RAY CRYSTALLOGRAPHY (2.8 ANGSTROMS).
RX MEDLINE=91095983; PubMed=1702556;
RA Zhu X., Komlya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
RA Hsu B.T., Rees D.C.;
RT "Three-dimensional structures of acidic and basic fibroblast growth
RT factors.";
RL Science 251:90-93(1991).
RN [14]
RP STRUCTURE BY NMR.
RX MEDLINE=97040521; PubMed=8885834;
RA Moy F.J., Seddon A.P., Boehlen P., Powers R.;
RT "High-resolution solution structure of basic fibroblast growth factor
RT determined by multidimensional heteronuclear magnetic resonance
RT spectroscopy.";
RL Biochemistry 35:13552-13561(1996).
RN [1]
RP FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC [1]
CC SUBUNIT: MONOMER.
CC [1]
CC MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC [1]
CC SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
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CC or send an email to license@sib-sib.ch).
CC -----
DR EMBL; M17599; AAA52534.1; ALT_INIT.
DR EMBL; X04431; CAA28027.1; -
DR EMBL; X04432; CAA28028.1; -
DR EMBL; X04433; CAA28029.1; -
DR EMBL; M27968; AAA52448.1; -
DR EMBL; J04513; AAA52533.1; ALT_INIT.
DR PIR; A25824; A25824.
DR PIR; A26642; A26642.
DR PIR; B24243; B24243.
DR PIR; B24301; B24301.
DR PIR; B32878; B32878.
DR PIR; S00297; S00297.
DR PDB; 2FCF; 15-APR-92.
DR PDB; 4FCF; 15-JUL-93.
DR PDB; 1FGA; 15-JUL-93.
DR PDB; 1BFB; 03-APR-96.
DR PDB; 1BFC; 03-APR-96.
DR PDB; 1BFF; 16-JUN-97.
DR PDB; 1BFG; 31-JAN-94.
DR PDB; 2BFH; 30-APR-94.
DR PDB; 1BLA; 08-NOV-96.
DR PDB; 1BLD; 08-NOV-96.
DR MIM; 134920; -
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PRO0262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding;
KW 3D-structure.
FT PROPEP 1 9
FT CHAIN 10 155
FT SITE 46 48
FT SITE 88 90
FT BINDING 27 31
FT BINDING 116 119
FT STRAND 30 34
FT STRAND 35 38
FT STRAND 39 43
FT STRAND 45 46
FT STRAND 49 52
FT STRAND 55 56
FT HELIX 58 60
FT STRAND 62 66
FT STRAND 69 70
FT STRAND 71 76
FT STRAND 77 80
FT STRAND 81 85
FT STRAND 87 88
FT STRAND 91 94
FT HELIX 99 101
FT STRAND 103 107
FT STRAND 109 110
FT STRAND 113 117
FT STRAND 121 122
FT STRAND 124 127
FT STRAND 127 127
FT STRAND 129 130
FT STRAND 132 133
FT HELIX 136 138
FT HELIX 141 142
FT HELIX 144 146
FT STRAND 148 152
SQ SEQUENCE 155 AA; 17254 MM; BE6CE13373007129 CRC64;

Query Match 73.9%; Score 826; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 2e-56;
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 56 MAAGSITLPALEDGSGAAPPFGHFKDPKRLCYCKNGGFLRLHPDGRVGVREKSDPHI 115
|||||
DB 1 MAAGSITLPALEDGSGAAPPFGHFKDPKRLCYCKNGGFLRLHPDGRVGVREKSDPHI 60
|||||

OY 116 KLQLOAERGVSIGVCANRYLAMEKEDGRLASKCVTDECFEERLESNNYNTYRSRY 175
|||||
DB 61 KLQLOAERGVSIGVCANRYLAMEKEDGRLASKCVTDECFEERLESNNYNTYRSRY 120
|||||

OY 176 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
|||||
DB 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155
|||||

RESULT 2
FGF2_BOVIN STANDARD; PRT; 155 AA.

ID FGF2_BOVIN
AC P03969;
DT 23-OCT-1986 (Rel. 02, Created)
DT 23-OCT-1986 (Rel. 02, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostathelin) [Contains: Kidney-derived growth factor].
DE FGF2 OR FGF-2.
GN Bos taurus (Bovine).
OS Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Bovinae; Bos.
OC NCBI_TaxID=9913;
OX [1]
RN
RP SEQUENCE FROM N.A.
RX MEDLINE-86261806; PubMed-2425435;
RA Abraham J.A., Mergia A., Whang J.L., Tumolo A., Friedman J., Hjertild K.A., Gospodarowicz D., Fiddes J.C.;
RT "Nucleotide sequence of a bovine clone encoding the angiogenic protein, basic fibroblast growth factor.";
RL Science 233:545-548(1986).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE-87217066; PubMed-3472745;
RA Abraham J.A., Whang J.L., Tumolo A., Mergia A., Fiddes J.C.;
RT "Human basic fibroblast growth factor: nucleotide sequence, genomic organization, and expression in mammalian cells.";
RL Cold Spring Harb. Symp. Quant. Biol. 51:657-668(1986).
RN [3]
RP SEQUENCE OF 10-155.
RX MEDLINE-86016731; PubMed-3863109;
RA Esch F., Baird A., Ling N., Ueno N., Hill F., Denoroy L., Klepper R., Gospodarowicz D., Boehlen P., Guillemin R.;
RT "Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and comparison with the amino-terminal sequence of bovine brain acidic FGF.";
RL Proc. Natl. Acad. Sci. U.S.A. 82:6507-6511(1985).
RN [4]
RP SEQUENCE OF 1-9.
RX MEDLINE-86295737; PubMed-3741423;
RA Ueno N., Baird A., Esch F., Ling N., Guillemin R.;
RT "Isolation of an amino terminal extended form of basic fibroblast growth factor.";
RL Biochem. Biophys. Res. Commun. 138:580-588(1986).
RN [5]
RP SEQUENCE OF 25-41.
RX TISSUE-Kidney;
MEDLINE-86095426; PubMed-4081126;
RA Baird A., Esch F., Boehlen P., Ling N., Gospodarowicz D.;
RT "Isolation and partial characterization of an endothelial cell growth factor from the bovine kidney: homology with basic fibroblast growth factor.";

RL Regul. Pept. 12:201-213(1985).
RN [6]
RP SEQUENCE OF 21-40.
RC TISSUE-Kidney;
RX MEDLINE-8719165; PubMed-3809608;
RA Ueno N., Baird A., Esch F., Shimazaki S., Ling N., Guillemin R.;
RT "Purification and partial characterization of a mitogenic factor from bovine liver: structural homology with basic fibroblast growth factor.";
RL Regul. Pept. 16:135-145(1986).
RN [7]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE-91095983; PubMed-1702556;
RA Zhu X., Komlya H., Chirino A., Faham S., Fox G.M., Arakawa T., Hsu B.T., Rees D.C.;
RT "Three-dimensional structures of acidic and basic fibroblast growth factors.";
RL Science 251:90-93(1991).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.
CC
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
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CC
CC EMBL: M13440; AAA30518.1; .
DR PIR; A24663; GKBOB.
DR PIR; A24819; A24819.
DR PIR; A32878; A32878.
DR PDB; 1BAS; 31-OCT-93.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; ILL_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; ILLHBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding; 3D-structure.
KW
FT PROPEP 1 9
FT CHAIN 10 155 HEPARIN-BINDING GROWTH FACTOR 2.
FT SITE 25 155 KIDNEY-DERIVED GROWTH FACTOR.
FT SITE 46 48 CELL ATTACHMENT SITE (POTENTIAL).
FT SITE 88 90 CELL ATTACHMENT SITE (POTENTIAL).
FT BINDING 27 31 HEPARIN (POTENTIAL).
FT BINDING 116 119 HEPARIN (POTENTIAL).
FT STRAND 30 34
FT TURN 35 38
FT STRAND 39 43
FT TURN 45 46
FT STRAND 49 52
FT TURN 55 56
FT HELIX 58 60
FT STRAND 62 68
FT TURN 69 70
FT STRAND 71 76
FT TURN 77 80
FT STRAND 81 85
FT TURN 87 88
FT STRAND 91 94
FT HELIX 99 101
FT STRAND 103 107
FT TURN 109 110

FT STRAND 113 117
FT TURN 121 122
FT STRAND 124 124
FT STRAND 127 127
FT TURN 129 130
FT STRAND 133 133
FT HELIX 136 138
FT TURN 141 142
FT HELIX 144 146
FT STRAND 148 151
SQ SEQUENCE 155 AA; 17250 MW; BE6CE70FA6107129 CRC64;

Query Match 73.1%; Score 817; DB 1; Length 155;
Best Local Similarity 98.7%; Pred. No. 9.8e-56;
Matches 153; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 56 MAAGSITLTPALPEDGSGAAPPGRHKKPKRLCKNGGFFLRHDPDGRVDGVREKSDPHI 115
DB 1 MAAGSITLTPALPEDGSGAAPPGRHKKPKRLCKNGGFFLRHDPDGRVDGVREKSDPHI 60

QY 116 KLOLQAEERGVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 175
DB 61 KLOLQAEERGVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120

QY 176 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 121 SSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 3
FGF2_SHEEP STANDARD; PRT; 155 AA.

AC P20003;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Bovidae; Caprinae; Ovis.
OC NCBI_TaxID=9940;
OX [1]
RN SEQUENCE FROM N.A.
RA Sutton R., Ward W.G., Raphael K.A., Cam G.R.;
RL Submitted (SEP-1994) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE OF 9-155.
RX MEDLINE-88055577; PubMed-3678486;
RA Simpson R.J., Moritz R.L., Lloyd C.J., Fabri L.J., Nice E.C.,
RA Rubira M.R., Burgess A.W.;
RT *Primary structure of ovine pituitary basic fibroblast growth factor.
RT factor.

RL FEBS Lett. 224:128-132(1987).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
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CC -----
DR EMBL; L36136; AAA31519.1; -
DR PIR; S00185; S00185.
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 155
FT SITE 45 48
FT SITE 87 90
FT BINDING 27 31
FT BINDING 116 119
SQ SEQUENCE 155 AA; 17280 MW; B5F2364BA610606D CRC64;

Query Match 72.5%; Score 811; DB 1; Length 155;
Best Local Similarity 98.1%; Pred. No. 2.8e-55;
Matches 152; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 56 MAAGSITLTPALPEDGSGAAPPGRHKKPKRLCKNGGFFLRHDPDGRVDGVREKSDPHI 115
DB 1 MAAGSITLTPALPEDGSGAAPPGRHKKPKRLCKNGGFFLRHDPDGRVDGVREKSDPHI 60

QY 116 KLOLQAEERGVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 175
DB 61 KLOLQAEERGVSISIKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYNTYRSRKY 120

QY 176 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 121 SSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 4
FGF2_RAT STANDARD; PRT; 154 AA.

AC P13109;
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-JAN-1990 (Rel. 13, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OC NCBI_TaxID=10116;
OX [1]
RN SEQUENCE FROM N.A.
RA STRAIN-SPRAGUE; DAWLEY; TISSUE-Ovary;
RL MEDLINE-89061721; PubMed-3196337;
RA Shimasaki S., Emoto N., Koba A., Mercado M., Shibata F.,
RA Cooksey K., Baird A., Ling N.;
RT *Complementary DNA cloning and sequencing of rat ovarian basic fibroblast growth factor and tissue distribution study of its mRNA.
RT Biochem. Biophys. Res. Commun. 157:256-263(1988).
RL [2]
RN SEQUENCE FROM N.A.
RP STRAIN-SPRAGUE; DAWLEY; TISSUE-Ovary;
RC MEDLINE-88262516; PubMed-3387229;
RX Kurokawa T., Seno M., Igarashi K.;
RA *Nucleotide sequence of rat basic fibroblast growth factor cDNA.
RL Nucleic Acids Res. 16:5201-5201(1988).
RN [3]
RP SEQUENCE OF 1-28 FROM N.A.
RC STRAIN-SPRAGUE; DAWLEY; TISSUE-Testis;
RX MEDLINE-97200905; PubMed-9048734;
RA Pasumathil K.B.S., Jin Y., Cattini P.A.;

RT "Cloning of the rat fibroblast growth factor-2 promoter region and
RT its response to mitogenic stimuli in glioma C6 cells.";
RL J. Neurochem. 68:898-908(1997).
RN (4)
RP SEQUENCE OF 35-154 FROM N.A.
RC STRAIN-SPRAGUE-DAWLEY; TISSUE-Brain;
RX MEDLINE-92329546; PubMed-1378302;
RA El-Husseini A.E.D., Paterson J.A., Myal Y., Shiu R.P.C.;
RT "PCR detection of the rat brain basic fibroblast growth factor (bFGF)
RT mRNA containing a unique 3' untranslated region.";
RL Biochim. Biophys. Acta 1131:314-316(1992).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- TISSUE SPECIFICITY: FOUND IN ALL THE TISSUES EXAMINED.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL; M22427; AAA41210.1; -
DR EMBL; X07285; CAA30265.1; -
DR EMBL; U78079; AAC53225.1; -
DR EMBL; X61697; CAA43863.1; -
DR PIR; S00876; S00876.
DR PIR; A31674; A31674.
DR HSSP; P09038; 1BFF.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF_1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA; 17139 MW; 1A0F14FF423D8403 CRC64;

Query Match 71.4%; Score 798.5; DB 1; Length 154;
Best Local Similarity 96.8%; Pred. No. 2.5e-54;
Matches 150; Conservative 4; Mismatches 0; Indels 1; Gaps 1;

QY 56 MAAGSITLTPALPEDGSGAFPPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPHI 115
Db 1 MAAGSITSLPALPEDGG-GAFPPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPHV 59
QY 116 KIQLOAEERGVSVIKGVCANRYLAKKEDGRLASKCVTDECFEERLESNNYNTYRSRY 175
Db 60 KIQLOAEERGVSVIKGVCANRYLAKKEDGRLASKCVTECFEERLESNNYNTYRSRY 119
QY 176 TSWYVALKRTGYKLGSKTGPCKAILFLPMSAKS 210
Db 120 TSWYVALKRTGYKLGSKTGPCKAILFLPMSAKS 154

RESULT 5
FGF2_MOUSE STANDARD; PRT; 154 AA.
ID FGF2_MOUSE
AC P15655;
DT 01-APR-1990 (Rel. 14, Created)

DT 01-APR-1990 (Rel. 14, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (bFGF) (Prostatropin).
GN FGF2 OR FGF-2.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_Taxid-10090;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE-90201563; PubMed-2318343;
RA Hebert J.M., Basillio C., Goldfarb M., Haub O., Martin G.R.;
RT "Isolation of cDNAs encoding four mouse FGF family members and
RT characterization of their expression patterns during embryogenesis.";
RL Dev. Biol. 138:454-463(1990).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN-C57BL/6J, A/J, AND NOD/LtJ; TISSUE-Spleen;
RA Ma R.Z., Teuscher C.;
RL Submitted (MAR-1998) to the EMBL/Genbank/DBJ databases.
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; M30644; AAA37621.1; -
DR EMBL; AF065903; AAC17503.1; -
DR EMBL; AF065904; AAC17504.1; -
DR EMBL; AF065905; AAC17505.1; -
DR PIR; C37360; C37360.
DR HSSP; P09038; 1BFF.
DR MGD; MGI:95516; Fgf2.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF_1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 9
FT CHAIN 10 154 HEPARIN-BINDING GROWTH FACTOR 2.
FT BINDING 26 30 HEPARIN (POTENTIAL).
FT BINDING 115 118 HEPARIN (POTENTIAL).
SQ SEQUENCE 154 AA; 17153 MW; 689F677416274388 CRC64;

Query Match 70.1%; Score 783.5; DB 1; Length 154;
Best Local Similarity 94.8%; Pred. No. 3.4e-53;
Matches 147; Conservative 5; Mismatches 2; Indels 1; Gaps 1;

QY 56 MAAGSITLTPALPEDGSGAFPPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPHI 115
Db 1 MAAGSITSLPALPEDGGA-AFPPGHFKDPKRLYCKNGGFLLRIHPDGRVDGVREKSDPHV 59
QY 116 KIQLOAEERGVSVIKGVCANRYLAKKEDGRLASKCVTDECFEERLESNNYNTYRSRY 175
Db 60 KIQLOAEERGVSVIKGVCANRYLAKKEDGRLASKCVTECFEERLESNNYNTYRSRY 119
QY 176 TSWYVALKRTGYKLGSKTGPCKAILFLPMSAKS 210

Db 120 SSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 154

```
RESULT 6
FGF2_MONDO
ID FGF2_MONDO STANDARD; PRT; 156 AA.
AC P48798;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF) (Prostatropin).
GN FGF2.
OS Monodelphis domestica (Short-tailed grey opossum).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Metatheria; Didelphimorphia; Didelphidae; Monodelphis.
OX NCBI_TaxID-13616;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE-EYE;
RX MEDLINE-94296558; PubMed-8024698;
RA Kusewitt D.F., Sabourin C.L.K., Sherburn T.E., Ley R.D.;
RT "Characterization of cDNA encoding basic fibroblast growth factor of
RT the marsupial Monodelphis domestica.";
RL DNA Cell Biol. 13:549-554(1994).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
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CC or send an email to license@isb-sib.ch).
CC
CC EMBL; Z15154; CAA78854.1; ALT_INIT.
CC HSSP; P09038; 1BFF.
CC InterPro; IPR002209; HBGF_FGF.
CC InterPro; IPR002348; IL1_HBGF.
CC Pfam; PF00167; FGF; 1.
CC PRINTS; PR00262; IL1HBGF.
CC PRODOM; PD000831; HBGF_FGF; 1.
CC SMART; SM00442; FGF; 1.
CC PROSITE; PS00247; HBGF_FGF; 1.
CC Growth factor; Mitogen; Angiogenesis; Heparin-binding.
CC PROPEP 1 9 BY SIMILARITY.
CC CHAIN 10 156 HEPARIN-BINDING GROWTH FACTOR 2.
CC BINDING 28 32 HEPARIN (POTENTIAL).
CC BINDING 117 120 HEPARIN (POTENTIAL).
CC SEQUENCE 156 AA; 17303 MW; 7E655FCC49BFL209 CRC64;
```

Query Match 68.0%; Score 760.5; DB 1; Length 156;
Best Local Similarity 92.9%; Pred. No. 1.9e-51;
Matches 145; Conservative 5; Mismatches 5; Indels 1; Gaps 1;

QY 56 MAAGSITTLPALPED-GGSGAPPPGHFKDPKRLCYCKNGFFLRINPDGRVDGVREKSDPH 114
Db 1 MAAGSITTLPALSGDGGGGAFFPGHFKDPKRLCYCKNGFFLRINPDGRVDGIRKSDPH 60
QY 115 IKIQDAEERGVSISIKVCANRYLAKEDGRLASKCVTDCEFFERLESNNYNTYRSRK 174
Db 61 IKIQDAEERGVSISIKVCANRYLAKEDGRLALAKYVTECEFFERLESNNYNTYRSRK 120
QY 175 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210

Db 121 YSNWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 156

```
RESULT 7
FGF2_CHICK
ID FGF2_CHICK STANDARD; PRT; 158 AA.
AC P48800;
DT 01-FEB-1996 (Rel. 33, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast
DE growth factor) (BFGF).
GN FGF2 OR FGF-2.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID-9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE-93246053; PubMed-7683281;
RA Borja A.Z., Zeller R., Meijers C.;
RT "Expression of alternatively spliced bFGF first coding exons and
RT antisense mRNAs during chicken embryogenesis.";
RL Dev. Biol. 157:110-118(1993).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES
CC AFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC
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CC
CC EMBL; M95707; AAA48617.1; -
CC HSSP; P09038; 1BFF.
CC InterPro; IPR002209; HBGF_FGF.
CC InterPro; IPR002348; IL1_HBGF.
CC Pfam; PF00167; FGF; 1.
CC PRINTS; PR00262; IL1HBGF.
CC PRODOM; PD000831; HBGF_FGF; 1.
CC SMART; SM00442; FGF; 1.
CC PROSITE; PS00247; HBGF_FGF; 1.
CC Growth factor; Mitogen; Angiogenesis; Heparin-binding.
CC PROPEP 1 12 BY SIMILARITY.
CC CHAIN 13 158 HEPARIN-BINDING GROWTH FACTOR 2.
CC BINDING 30 34 HEPARIN (POTENTIAL).
CC BINDING 119 122 HEPARIN (POTENTIAL).
CC SEQUENCE 158 AA; 17374 MW; 7B69B684C17F1816 CRC64;
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Query Match 67.9%; Score 759; DB 1; Length 158;
Best Local Similarity 92.2%; Pred. No. 2.6e-51;
Matches 142; Conservative 5; Mismatches 7; Indels 0; Gaps 0;

QY 57 AAGSITTLPALPEDGGGAPPPGHFKDPKRLCYCKNGFFLRINPDGRVDGVREKSDPH 116
Db 5 AAGSITTLPALPDGCGGAPPPGHFKDPKRLCYCKNGFFLRINPDGRVDGVREKSDPH 64
QY 117 IQDAEERGVSISIKVCANRYLAKEDGRLASKCVTDCEFFERLESNNYNTYRSRYT 176
Db 65 IQDAEERGVSISIKVCANRYLAKEDGRLALAKCATCECEFFERLESNNYNTYRSRYT 124
QY 177 SSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210

DB 125 DMTVALKRTGQYKPGKPTGPGOKAILEFPMASAKS 158

|||||

RESULT 8
ID FGF2_RABIT STANDARD; PRT: 137 AA.

AC P48799;

DT 01-FEB-1996 (Rel. 33, Created)

DT 01-FEB-1996 (Rel. 33, Last sequence update)

DT 01-MAR-2002 (Rel. 41, Last annotation update)

DE Heparin-binding growth factor 2 (HBGF-2) (Basic fibroblast growth factor) (BFGF) (Prostatropin) (Fragment).

GN FGF2.

OS Oryctolagus cuniculus (Rabbit).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Lagomorpha; Leporidae; Oryctolagus.

OX NCBI_TaxID=9986;

RN [1]

RP SEQUENCE FROM N.A.

RC STRAIN-NEW ZEALAND WHITE; TISSUE-Smooth muscle;

RX MEDLINE-93343209; PubMed-8342599;

RA Winkles J.A., Friesel R., Alberts G.F., Janat M.F., Llau G.;

RT "Elevated expression of basic fibroblast growth factor in an immortalized rabbit smooth muscle cell line.";

RL Am. J. Pathol. 143:518-527(1993).

CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- SUBUNIT: MONOMER.

CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN MORE STRONGLY THAN DOES AFGF.

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

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CC EMBL: L12034; AAA31248.1; -

DR HSSP: P09038; 1BFF.

DR InterPro: IPR002209; HBGF_FGF.

DR Pfam: PF00167; FGF_1.

DR PRODom: PD000831; HBGF_FGF; 1.

DR SMART: SM00442; FGF; 1.

DR PROSITE: PS00247; HBGF_FGF; 1.

KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.

FT BINDING 18 22 HEPARIN (POTENTIAL).

FT BINDING 107 110 HEPARIN (POTENTIAL).

FT NON_TER 137 137 HEPARIN (POTENTIAL).

SO SEQUENCE 137 AA; 15418 MW; 0D9EE457B88E8C51 CRC64;

Query Match

Best Local Similarity 66.0%; Score 738; DB 1; Length 137;

Matches 136; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

DB 65 PALPEDGSGAFPPGHFKDKRLCKNGGFLRIHPDGRVDGVRKESDPHIKLOLAER 124
|||||

DB 1 PALPEDGSGAFPPGHFKDKRLCKNGGFLRIHPDGRVDGVRKESDPHIKLOLAER 60
|||||

DB 125 GVSISIKGVCANRYLAMKEDGRLLASKCVTDECFERLESNNYNTYRSRKYTSWYVALKR 184
|||||

DB 61 GVSISIKGVCANRYLAMKEDGRLLASKCVTDECFERLESNNYNTYRSRKYTSWYVALKR 120
|||||

DB 185 TGQYKLGSKTGPQKAI 201
|||||

DB 121 TGQYKLGSKTGPQKAI 137
|||||

RESULT 9
ID FGF2_XENLA STANDARD; PRT: 155 AA.

AC P12226;

DT 01-OCT-1989 (Rel. 12, Created)

DT 01-JAN-1990 (Rel. 13, Last sequence update)

DT 01-MAR-2002 (Rel. 41, Last annotation update)

DE Heparin-binding growth factor 2 precursor (HBGF-2) (Basic fibroblast growth factor) (BFGF).

GN FGF2 OR FGF-2.

OS Xenopus laevis (African clawed frog).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;

OX NCBI_TaxID=8355;

RN [1]

RP SEQUENCE FROM N.A.

RX MEDLINE-89058621; PubMed-3194757;

RA Kimelman D., Abraham J., Haaparanta T., Pallst T., Kirschner M.;

RT "The presence of fibroblast growth factor in the frog egg: its role as a natural mesoderm inducer.";

RL Science 242:1053-1056(1988).

RN [2]

RP SEQUENCE OF 95-155 FROM N.A.

RX MEDLINE-88052890; PubMed-3479265;

RA Kimelman D., Kirschner M.;

RT "Synergistic induction of mesoderm by FGF and TGF-beta and the identification of an mRNA coding for FGF in the early Xenopus embryo.";

RL Cell 51:869-877(1987).

CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.

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CC EMBL: M18067; AAA49726.1; -

DR PIR: A29618; A29618.

DR PIR: A40117; A40117.

DR HSSP: P09038; 1BFF.

DR InterPro: IPR002209; HBGF_FGF.

DR InterPro: IPR002348; IL1_HBGF.

DR Pfam: PF00167; FGF; 1.

DR PRINTS: PR00262; IL1HBGF.

DR PRODom: PD000831; HBGF_FGF; 1.

DR SMART: SM00442; FGF; 1.

DR PROSITE: PS00247; HBGF_FGF; 1.

KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.

FT CHAIN 1 9 HEPARIN-BINDING GROWTH FACTOR 2.

FT BINDING 27 31 HEPARIN (POTENTIAL).

FT BINDING 116 119 HEPARIN (POTENTIAL).

FT CONFLICT 111 111 MISSING (IN REF. 2).

SO SEQUENCE 155 AA; 17241 MW; 036735C8063142FD CRC64;

Query Match

Best Local Similarity 61.4%; Score 687; DB 1; Length 155;

Matches 130; Conservative 9; Mismatches 16; Indels 0; Gaps 0;

DB 56 MAAGSITLTPALPEDGSGAFPPGHFKDKRLCKNGGFLRIHPDGRVDGVRKESDPHI 115
|||||

DB 1 MAAGSITLTPESDGNFSPGSKDKRLCKNGGFLRIHNSDGRVDSRDKSDSHI 60
|||||

DB 116 KLOLAERGVVSISIKGVCANRYLAMKEDGRLLASKCVTDECFERLESNNYNTYRSRKY 175
|||||

DB 61 KLOLAERGVVSISIKGVCANRYLAMKEDGRLLASKCVTDECFERLESNNYNTYRSRKY 120
|||||

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OY 176 TSMYVALKRTGQYKLGSKTGPCKAILFLPMASAKS 210
    :|||||
DB 121 SSMYVALKRTGQYKNGSSSTGPGCKAILFLPMASAKS 155

RESULT 10
FGFI_MESAU STANDARD; PRT; 155 AA.
ID FGFI_MESAU
AC P34004;
DT 01-FEB-1994 (Rel. 28, Created)
DT 01-FEB-1994 (Rel. 28, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
growth factor) (AFGF).
GN FGFI OR FGF-1.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.
OX NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE-90270291; PubMed-1693366;
RA Hall J.A., Harris M.A., Malark M., Mansson P.E., Zhou H., Harris S.E.;
RT "Characterization of the hamster DDT-1 cell afgf/HBGF-1 gene and cDNA
RT and its modulation by steroids.";
RL J. Cell. Biochem. 43:17-26(1990).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
DR PIR; A60721; A60721.
DR HSSP; P05230; 1RML.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 15
FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17403 MW; 41E5EC760E412CC5 CRC64;

Query Match 37.4%; Score 418.5; DB 1; Length 155;
Best Local Similarity 54.8%; Pred. No. 1.9e-25;
Matches 86; Conservative 16; Mismatches 50; Indels 5; Gaps 2;

OY 56 MAGSITTLPALPEDGSGAPPGHFKDPKRLYCKNGFFLRIHPDGRVDGVREKSDPHI 115
    |||||
DB 1 MABGEITTFESALTERFN---LPGNYKKPKLLYCSNGSHFLRLIPDGTVDGTRDSDOI 57

OY 116 KIQIQAEERGVSVISIKVCANRYLAKEDGRLLASKCYTDECFEERLESNNYNTYRSRY 175
    :|||||
DB 58 QIQISAESAGEVYIKETGQYLIAMDTGLLYGSQTPNECLFLERLEENHYNTYTSKH 117

OY 176 T--SWYVALKRTGQYKLGSKTGPCKAILFLPMASAKS 210
    :|||
DB 118 AKNWFGVGLKNGSKRGPRTHYGOKAILFLPLPVSS 154

RESULT 11
FGFI_CHICK STANDARD; PRT; 155 AA.
ID FGFI_CHICK
AC P19396;

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DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast
growth factor) (AFGF) (Alpha-endothelial cell growth factor).
GN FGFI OR FGF-1;
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae; Phasianinae;
OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE-91347925; PubMed-1715259;
RA Schnurch H., Risau W.;
RT "Differentiating and mature neurons express the acidic fibroblast
RT growth factor gene during chick neural development.";
RL Development 111:1143-1154(1991).
RN [2]
RP SEQUENCE FROM N.A.
RA Martin G.R., Han J.K.;
RL Submitted (JUL-1995) to the EMBL/GenBank/DBJ databases.
RN [3]
RP SEQUENCE OF 22-48.
RX MEDLINE-88296438; PubMed-3402441;
RA Risau W., Gautschi-Sova P., Boehlen P.;
RT "Endothelial cell growth factors in embryonic and adult chick brain
RT are related to human acidic fibroblast growth factor.";
RL EMBO J. 7:959-962(1988).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL; S63263; AAB19629.1; -
DR EMBL; U31863; AAB80310.1; -
DR EMBL; S63261; AAD13942.1; -
DR PIR; S02639; S02639.
DR HSSP; P05230; 2AXM.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 15
FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
FT CHAIN 22 155 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17322 MW; 8EDB70545E2B4365 CRC64;

Query Match 36.7%; Score 410.5; DB 1; Length 155;
Best Local Similarity 54.9%; Pred. No. 7.7e-25;
Matches 84; Conservative 20; Mismatches 44; Indels 5; Gaps 2;

OY 56 MAGSITTLPALPEDGSGAPPGHFKDPKRLYCKNGFFLRIHPDGRVDGVREKSDPHI 115
    |||||

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RX MEDLINE-98387896; PubMed-9719643;
RA Lozano R.M., Jimenez M., Santoro J., Rico M., Gimenez-Gallego G.;
RT "Solution structure of acidic fibroblast growth factor bound to 1,3,
RT 6-naphthalenesulfonate: a minimal model for the anti-tumoral
RT action of suramin and suradistas.";
RL J. Mol. Biol. 281:899-915(1998).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BFGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC or send an email to license@isb-sib.ch).
CC -----
DR EMBL; M13361; AAA79245.1; -
DR EMBL; X51943; CAA36206.1; -
DR EMBL; M30492; AAA52446.1; -
DR EMBL; M30490; AAA52446.1; JOINED.
DR EMBL; M30491; AAA52446.1; JOINED.
DR EMBL; M60515; AAA51672.1; -
DR EMBL; M60516; AAA51673.1; -
DR EMBL; M23087; AAA52638.1; -
DR EMBL; M23086; AAA52638.1; JOINED.
DR EMBL; S67291; AAB29057.2; -
DR EMBL; X65778; CAA46661.1; -
DR PIR; A23553; A23553.
DR PIR; A24243; A24243.
DR PIR; A24301; A24301.
DR PIR; A24662; A24662.
DR PIR; A24820; A24820.
DR PIR; A26386; A26386.
DR PIR; A33665; A33665.
DR PIR; S18217; S18217.
DR PDB; 2AFG; 15-OCT-95.
DR PDB; 1AXM; 22-APR-98.
DR PDB; 2AXM; 22-APR-98.
DR PDB; 1RML; 11-NOV-98.
DR MIM; 131220; -
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;
KW 3D-structure.
FT PROPEP 1 15
FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
FT MOD_RES 2 2 ACETYLATION.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17460 MW; F586E8BF809F1580 CRC64;

Query Match 36.6%; Score 409.5; DB 1; Length 155;
Best Local Similarity 54.1%; Pred. No. 9.2e-25;
Matches 85; Conservative 16; Mismatches 51; Indels 5; Gaps 2;

QY 56 MAAGSITLPLPEDGSGAAPPFGHFKDKPKRLCYKNGGFFLRHPDGRVDGVREKSDPHI 115
DB 1 MAEGEITTFALPEKRN---LPNGYKKPKLLCYSGNGHFLRLPDGTVDGTRDSQHI 57
QY 116 KIQLOAEEGVSIVKVCANRYLAKEGRLIASKCVTDECFEERLESNNYNTYRSRY 175

DB 58 QLOLSAESVGEVYIKSTETGOYLAQMDTGILGSGQTPNECLFLERLENHYNTYSK 117
QY 176 T--SWYVALKRTGOYKLGSKTGPQKAILPLPMSAKS 210
DB 118 AEKNWFGVKKNGSKRGPRTHYGOKAILPLPVS 154

RESULT 13
FGF1_MOUSE
ID FGF1_MOUSE STANDARD; PRT; 155 AA.
AC P10935;
DT 01-JUL-1989 (Rel. 11, Created)
DT 01-JUL-1989 (Rel. 11, last sequence update)
DT 01-MAR-2002 (Rel. 41, last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (acidic fibroblast
DE growth factor) (AFGF).
GN FGF1 OR FGF-1 OR FGFA.
OS Mus musculus (Mouse), and
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_Taxid-10090, 10116;
[1]
RP SEQUENCE FROM N.A.
RC SPECIES=Rat;
RX MEDLINE-89240051; PubMed-2470029;
RA Goodrich S., Yan G.C., Bahrenburg K., Mansson P.E.;
RT "The nucleotide sequence of rat heparin binding growth factor 1
RT (HBGF-1).";
RL Nucleic Acids Res. 17:2867-2867(1989).
[2]
RP SEQUENCE FROM N.A.
RC SPECIES=Mouse;
RX MEDLINE-90201563; PubMed-2318343;
RA Hebert J.M., Basillio C., Goldfarb M., Haub O., Martin G.R.;
RT "Isolation of cDNAs encoding four mouse FGF family members and
RT characterization of their expression patterns during embryogenesis.";
RL Dev. Biol. 138:454-463(1990).
[3]
RP SEQUENCE FROM N.A.
RC SPECIES=Mouse;
RX MEDLINE-97128312; PubMed-8972905;
RA Madiai F., Hackshaw K.V., Chiu I.M.;
RT "Cloning and characterization of the mouse Fgf-1 gene.";
RL Gene 179:231-236(1996).
[4]
RP SEQUENCE FROM N.A.
RC SPECIES=Mouse; STRAIN=BALB/C;
RX MEDLINE-97094746; PubMed-8939980;
RA Alam K.Y., Frostholt A., Hackshaw K.V., Evans J.E., Rotter A.;
RT "Characterization of the 1B promoter of fibroblast growth factor 1
RT and its expression in the adult and developing mouse brain.";
RL J. Biol. Chem. 271:30263-30271(1996).
-1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -1- SUBUNIT: MONOMER.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
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CC -----
DR EMBL; X14232; CAA32448.1; -
DR EMBL; M30641; AAA37618.1; -
DR EMBL; U36459; AAC52969.1; -

DR EMBL; U36457; AAC52969.1; JOINED.
DR EMBL; U36458; AAC52969.1; JOINED.
DR EMBL; U67610; AAC52907.1; -.
DR PIR; S04147; S04147.
DR PIR; D37360; D37360.
DR HSSP; P05230; 1RML.
DR MGD; MGI:95515; Fgf1.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 155 HEPARIN-BINDING GROWTH FACTOR 1.
FT BINDING 24 28 HEPARIN (POTENTIAL).
FT BINDING 113 116 HEPARIN (POTENTIAL).
SQ SEQUENCE 155 AA; 17418 MW; 8880E4FE0FBA4161 CRC64;

Query Match 36.2%; Score 404.5; DB 1; Length 155;
Best Local Similarity 53.5%; Pred. No. 2.2e-24;
Matches 84; Conservative 17; Mismatches 51; Indels 5; Gaps 2;

OY 56 MAAGSITLPLPEDGSGAAPPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVREKSDPHI 115
DB 1 MAEGITFTALTEN--LPLGNVKKPKLLYCSNGGHFLRIHPDGTVDGTRDRSDQHI 57
OY 116 KIQLOAEEERGVSIGVCANRYLAKMEDGRLASKCVTDECFERLESNNNTYRSRKY 175
DB 58 QLOLSAESAGEVYIKGTETGQYLAAMDTEGLLYGSQTPNEECFLERLEENHNTYTSKHH 117
OY 176 T--SMYVALKRTGYKLGSKTGPCKAILFLPM SAKS 210
DB 118 AEKNMFVGLKKNKSGCKRGPRTHYGOKAILFLPLPVSS 154

RESULT 14
FGF1_PIG STANDARD; PRT; 152 AA.
AC P20002;
DT 01-FEB-1991 (Rel. 17, Created)
DT 01-FEB-1996 (Rel. 33, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (Alpha-endothelial cell growth factor) (Fragment).
DE FGF1 OR FGF-1.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_TaxID=9823;
RN 11
RP SEQUENCE FROM N.A.
RC TISSUE=Heart;
RX MEDLINE=92062117; PubMed=1719973;
RA Schmidt M., Sharma H.S., Scholt R.J., Schaper W.;
RT "Amplification and sequencing of mRNA encoding acidic fibroblast growth factor (AFGF) from porcine heart."
RL Biochem. Biophys. Res. Commun. 180:853-859(1991).
RN 12
RP SEQUENCE OF 22-41.
RX MEDLINE=89231704; PubMed=2714282;
RA Quintler W., Maasberg M., Bernotat-Danielowski S., Luethke N.,
RA Sharma H.S., Schaper W.;
RT "Isolation of heparin-binding growth factors from bovine, porcine and canine hearts."
RL Eur. J. Biochem. 181:67-73(1989).
CC -!- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND

CC CONCENTRATION OF THESE 2 GROWTH FACTORS.
CC -!- SUBUNIT: MONOMER.
CC -!- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY THAN DOES BEGF.
CC -!- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
CC -----
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CC -----

DR EMBL; X60317; CAA42869.1; -.
DR PIR; S03954; S03954.
DR HSSP; P05230; 2AXM.
DR InterPro; IPR002209; HBGF_FGF.
DR Pfam; PF00167; FGF; 1.
DR PRODOM; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding.
FT PROPEP 1 15
FT CHAIN 16 152 HEPARIN-BINDING GROWTH FACTOR 1.
FT BINDING 22 28 ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
FT BINDING 113 116 HEPARIN (POTENTIAL).
FT CONFLICT 31 31 HEPARIN (POTENTIAL).
FT CONFLICT 39 39 C -> S (IN REF. 2).
FT NON_TER 152 152 R -> Y (IN REF. 2).
SQ SEQUENCE 152 AA; 17103 MW; AE853B0A92F9ABF4 CRC64;

Query Match 36.1%; Score 403.5; DB 1; Length 152;
Best Local Similarity 54.2%; Pred. No. 2.6e-24;
Matches 83; Conservative 17; Mismatches 48; Indels 5; Gaps 2;

OY 56 MAAGSITLPLPEDGSGAAPPFGHFKDPKRLYCKNGGFLRIHPDGRVDGVREKSDPHI 115
DB 1 MAEGITFTALTEN--LPLGNVKKPKLLYCSNGGHFLRIHPDGTVDGTRDRSDQHI 57
OY 116 KIQLOAEEERGVSIGVCANRYLAKMEDGRLASKCVTDECFERLESNNNTYRSRKY 175
DB 58 QLOLSAESGEVYIKSTETGQYLAAMDTSGLLYGSQTPSEECFLERLEENHNTYTSKHH 117
OY 176 T--SMYVALKRTGYKLGSKTGPCKAILFLPM 206
DB 118 AEKNMFVGLKKNKSGCKRGPRTHYGOKAILFLPL 150

RESULT 15
FGF1_BOVIN STANDARD; PRT; 155 AA.
AC P03968;
DT 23-OCT-1986 (Rel. 02, Created)
DT 01-MAR-1989 (Rel. 10, Last sequence update)
DT 01-MAR-2002 (Rel. 41, Last annotation update)
DE Heparin-binding growth factor 1 precursor (HBGF-1) (Acidic fibroblast growth factor) (AFGF) (Prostatepin) (Endothelial cell growth factor beta and alpha chains) (Acidic eye-derived growth factor II) (EDGF II).
DE FGF1 OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
GN FGF1 OR FGF-1 OR FGFA OR HBGF-1 OR AFGF.
OS Bos taurus (Bovine).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae.
OX NCBI_TaxID=9913;
RN 11
RP SEQUENCE FROM N.A.
RC TISSUE=Retina;
RX MEDLINE=89083506; PubMed=3205724;
RA Halley C., Courtois Y., Laurent M.;

RT "Nucleotide sequence of bovine acidic fibroblast growth factor cDNA.";
RL Nucleic Acids Res. 16:10913-10913(1988).
RN [12]
RP SEQUENCE FROM N.A.
RC TISSUE-Retina;
RX MEDLINE-89078619; PubMed=2849564;
RA Alterio J., Halley C., Brou C., Soussi T., Courtois Y., Laurent M.;
RT "Characterization of a bovine acidic FGF cDNA clone and its
RL expression in brain and retina.";
RN FEBS Lett. 242:41-46(1988).
RN [13]
RP SEQUENCE OF 2-155.
RX MEDLINE-87016918; PubMed=3532107;
RA Burgess W.H., Mehlman T., Marshak D.R., Fraser B.A., Maciag T.;
RT "Structural evidence that endothelial cell growth factor beta is the
RT precursor of both endothelial cell growth factor alpha and acidic
RL fibroblast growth factor.";
RN Proc. Natl. Acad. Sci. U.S.A. 83:7216-7220(1986).
RN [14]
RP SEQUENCE OF 2-155.
RX MEDLINE-87026586; PubMed=3768327;
RA Crabb J.W., Armes L.G., Carr S.A., Johnson C.M., Roberts G.D.,
RA Bordoli R.S., McKeehan W.L.;
RT "Complete primary structure of prostatioplin, a prostate epithelial
RT cell growth factor.";
RL Biochemistry 25:4988-4993(1986).
RN [15]
RP SEQUENCE OF 16-155.
RX MEDLINE-86070224; PubMed=4071057;
RA Gimenez-Galleo G., Rodkey J., Bennett C., Rios-Candelore M.,
RA Disalvo J., Thomas K.;
RT "Brain-derived acidic fibroblast growth factor: complete amino acid
RT sequence and homologues.";
RL Science 230:1385-1388(1985).
RN [16]
RP SEQUENCE OF 16-44, AND COMPOSITION.
RX MEDLINE-86055750; PubMed=4065099;
RA Boehlen P., Esch F., Baird A., Gospodarowicz D.;
RT "Acidic fibroblast growth factor (FGF) from bovine brain:
RT amino-terminal sequence and comparison with basic FGF.";
RL EMBO J. 4:1951-1956(1985).
RN [17]
RP SEQUENCE OF 16-56 FROM N.A.
RX MEDLINE-86261806; PubMed=2425435;
RA Abraham J.A., Merz A., Whang J.L., Tumolo A., Friedman J.,
RA Hjerrild K.A., Gospodarowicz D., Fiddes J.C.;
RT "Nucleotide sequence of a bovine clone encoding the angiogenic
RT protein, basic fibroblast growth factor.";
RL Science 233:545-548(1986).
RN [18]
RP SEQUENCE OF 16-45.
RX MEDLINE-89231704; PubMed=2714282;
RA Quinkler W., Maasberg M., Bernotat-Danielowski S., Luethe N.,
RA Sharma H.S., Schaper W.;
RT "Isolation of heparin-binding growth factors from bovine, porcine and
RT canine hearts.";
RL Eur. J. Biochem. 181:67-73(1989).
RN [19]
RP SEQUENCE OF 1-18 FROM N.A.
RA Philippe J.M., Renaud F., Desset S., Laurent M.;
RL Submitted (JUL-1992) to the EMBL/GenBank/DBJ databases.
RN [16]
RP X-RAY CRYSTALLOGRAPHY (3.0 ANGSTROMS).
RX MEDLINE-9105983; PubMed=1702556;
RA Zhu X., Komlya H., Chirino A., Faham S., Fox G.M., Arakawa T.,
RA Hsu B.T., Rees D.C.;
RT "Three-dimensional structures of acidic and basic fibroblast growth
RT factors.";
RL Science 251:90-93(1991).
CC -1- FUNCTION: THE HEPARIN-BINDING GROWTH FACTORS ARE ANGIOGENIC AGENTS
CC IN VIVO AND ARE POTENT MITOGENS FOR A VARIETY OF CELL TYPES IN
CC VITRO. THERE ARE DIFFERENCES IN THE TISSUE DISTRIBUTION AND
CC CONCENTRATION OF THESE 2 GROWTH FACTORS.

CC -1- SUBUNIT: MONOMER.
CC -1- MISCELLANEOUS: THIS PROTEIN BINDS HEPARIN, ALTHOUGH LESS STRONGLY
CC THAN DOES BEGF.
CC -1- SIMILARITY: BELONGS TO THE HEPARIN-BINDING GROWTH FACTORS FAMILY.
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CC -----
DR EMBL; M13439; AAA30516.1; -
DR EMBL; X13221; CAA31610.1; -
DR EMBL; X14032; CAA32192.1; -
DR EMBL; M35608; AAA30517.1; -
DR EMBL; X66446; CAA47063.1; -
DR EMBL; M97660; AAA30563.1; -
DR EMBL; M97661; AAA30564.1; -
DR PIR; A01385; GRBOA.
DR PIR; A25043; A25043.
DR PIR; B25043; B25043.
DR PIR; C25043; C25043.
DR PIR; A24477; A24477.
DR PIR; B24663; B24663.
DR PIR; S02102; S02102.
DR PDB; 1BAR; 31-OCT-93.
DR PDB; 1AFC; 31-OCT-93.
DR InterPro; IPR002209; HBGF_FGF.
DR InterPro; IPR002348; IL1_HBGF.
DR Pfam; PF00167; FGF; 1.
DR PRINTS; PR00262; IL1HBGF.
DR ProDom; PD000831; HBGF_FGF; 1.
DR SMART; SM00442; FGF; 1.
DR PROSITE; PS00247; HBGF_FGF; 1.
KW Growth factor; Mitogen; Angiogenesis; Heparin-binding; Acetylation;
KW 3D-structure.
FT PROPEP 1 15
FT CHAIN 2 155
FT CHAIN 16 155
FT CHAIN 22 155
FT MOD_RES 2 2
FT BINDING 24 28
FT BINDING 113 116
FT STRAND 27 31
FT STRAND 32 34
FT STRAND 37 40
FT TURN 42 43
FT STRAND 45 49
FT STRAND 55 57
FT STRAND 59 61
FT STRAND 69 69
FT STRAND 71 73
FT STRAND 79 82
FT TURN 84 85
FT STRAND 87 91
FT HELIX 96 98
FT STRAND 100 100
FT STRAND 103 104
FT TURN 106 107
FT STRAND 110 111
FT STRAND 111 111
FT TURN 113 114
FT TURN 116 121
FT STRAND 123 123
FT STRAND 126 126
FT TURN 128 129
FT STRAND 132 132
FT STRAND 134 134
FT HELIX 135 137
FT TURN 140 141
FT TURN 144 145
FT STRAND 147 150

ENDOTHELIAL CELL GROWTH FACTOR BETA.
HEPARIN-BINDING GROWTH FACTOR 1.
ENDOTHELIAL CELL GROWTH FACTOR ALPHA.
ACETYLATION.
HEPARIN (POTENTIAL).
HEPARIN (POTENTIAL).

SO SEQUENCE 155 AA; 17493 MW; F636641F189F9BFD CRC64;

Query Match 35.28; Score 393.5; DB 1; Length 155;
Best Local Similarity 52.28; Pred. No. 1.5e-23;
Matches 82; Conservative 19; Mismatches 51; Indels 5; Gaps 2;

```

OY 56 MAAGSITTLPALPEDGSGAAPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVREKSDPHI 115
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1 MAEGETTTFTALTERN---LPLGNYKKPKLLYCSNGGYFLRILPDGTVDGTKDRSDQHI 57

OY 116 KLQLQAEERGVSIRGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRY 175
    :||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 58 QLQLCAESIGEVYIKSTETGQFLAMOTDGLYGSQTPNEECLEFLERLEENHYNTYISKH 117

OY 176 TS--WYVALKRRGQYKLGSKTGPQKALFLPMSAKS 210
    ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 118 AEKHWFGVGLKKNGRSKLGPRTHFGQKALFLPLPVSS 154
    
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Search completed: June 2, 2002, 18:05:14
Job time: 242 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 17:54:02 ; Search time 35.96 Seconds

(Without alignments)
561.145 Million cell updates/sec

Title: US-09-642-277A-1

Perfect score: 1118

Sequence: 1 MGDGRGRALPGRLGGRG.....GSKTGPQKAILFLPMSAKS 210

Scoring table: BLOSUM62

Searched: 283138 seqs, 96089334 residues

Total number of hits satisfying chosen parameters: 283138

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database : PIR_71:*

1: p1r1:*

2: p1r2:*

3: p1r3:*

4: p1r4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	1118	100.0	210	2	A32398	basic fibroblast g
2	823	73.6	157	1	GKBOB	basic fibroblast g
3	802.5	71.8	189	2	A48834	basic fibroblast g
4	798.5	71.4	154	2	A31674	basic fibroblast g
5	783.5	70.1	154	2	C37360	basic fibroblast g
6	770	68.9	146	1	S00185	basic fibroblast g
7	767.5	68.6	164	2	S31622	basic fibroblast g
8	738	66.0	137	2	I46711	fibroblast growth
9	687	61.4	155	1	A40117	basic fibroblast g
10	531.5	47.5	125	2	A32484	basic fibroblast g
11	418.5	37.4	155	1	A60721	acidic fibroblast
12	410.5	36.7	155	2	A60130	acidic fibroblast
13	409.5	36.6	155	1	A33665	acidic fibroblast
14	404.5	36.2	155	2	S04147	acidic fibroblast
15	404.5	36.2	155	2	D37360	acidic fibroblast
16	403.5	36.1	152	2	JH0476	acidic fibroblast
17	395.5	35.4	155	2	JW0055	acidic fibroblast
18	393.5	35.2	155	1	GKBOA	acidic fibroblast
19	278.5	24.9	194	2	I50710	fibroblast growth
20	272.5	24.4	206	1	TVH0HS	fibroblast growth
21	271	24.2	256	2	JC4627	fibroblast growth
22	266.5	23.8	206	2	JC4268	fibroblast growth
23	265.5	23.7	266	2	S68144	fibroblast growth
24	263	23.5	268	2	S14192	fibroblast growth
25	262	23.4	264	2	A36207	fibroblast growth
26	261	23.3	208	2	S20102	fibroblast growth
27	259.5	23.2	202	1	TVMSHS	fibroblast growth
28	253	22.6	267	1	TVH0FS	fibroblast growth
29	251	22.5	220	2	I50588	fibroblast growth

30	243.5	21.8	239	1	S04742	fibroblast growth
31	242.5	21.7	245	1	TYMST2	transforming prote
32	241	21.6	237	1	S39582	transforming prote
33	239	21.4	187	2	S23595	embryonic fibrobla
34	234.5	21.0	192	2	S54407	embryonic fibrobla
35	219	19.6	208	2	S66486	fibroblast growth
36	219	19.6	208	2	A48137	fibroblast growth
37	218.5	19.5	211	2	JC7353	fibroblast growth
38	210	18.8	208	2	JC7082	fibroblast growth
39	209.5	18.7	194	2	I48610	keratinocyte growth
40	207.5	18.6	194	1	A36301	fibroblast growth
41	207.5	18.6	194	2	S26049	fibroblast growth
42	207.5	18.6	194	2	S49501	keratinocyte growth
43	206.5	18.5	207	2	JC5940	fibroblast growth
44	206.5	18.5	212	2	JC7511	fibroblast growth
45	205.5	18.4	207	2	JC5941	fibroblast growth

ALIGNMENTS

RESULT 1

A32398

basic fibroblast growth factor precursor, 22.5K form - human

N:Alternate names: bFGF; fibroblast growth factor 2; prostatic growth factor; prosta

N:Contains: basic fibroblast growth factor, 18K form

C:Species: Homo sapiens (man)

C>Date: 31-Jul-1989 #sequence_revision 31-Dec-1993 #text_change 21-Jul-2000

C:Accession: A32398; A61537; A26642; B32878; S00297; A54316; B54316; A33624; A25824;

R:Prats, H.; Kaghad, M.; Prats, A.C.; Klagsbrun, M.; Lelias, J.M.; Llanzun, P.; Cha]

Proc. Natl. Acad. Sci. U.S.A. 86, 1836-1840, 1989

A:Title: High molecular mass forms of basic fibroblast growth factor are initiated i

A:Reference number: A32398; MUID:89184522

A:Accession: A32398

A:Molecule type: mRNA

A:Residues: 1-210 <PRA>

A:Cross-references: GB:J04513; NID:9183083; PIDN:AAA52531.1; PID:9459811

R:Shibata, F.; Baird, A.; Florjanczyk, R.Z.

Growth Factors 4, 277-287, 1991

A:Title: Functional characterization of the human basic fibroblast growth factor ge

A:Reference number: A61537; MUID:92110035

A:Accession: A61537

A:Molecule type: DNA

A:Residues: 1-114 <SHI>

A:Note: authors translated the codon GGA for residue 47 as Ala

R:Kurokawa, T.; Sasada, R.; Iwane, M.; Igarashi, K.

FEBS Lett. 213, 189-194, 1987

A:Title: Cloning and expression of cDNA encoding human basic fibroblast growth facto

A:Reference number: A26642; MUID:87162468

A:Accession: A26642

A:Molecule type: mRNA

A:Residues: 56-210 <KUR>

A:Cross-references: GB:M27968; NID:9182562; PIDN:AAA52448.1; PID:9182563

R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.

Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986

A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organ

A:Reference number: A90924; MUID:87217066

A:Accession: B32878

A:Molecule type: mRNA

A:Residues: 56-210 <ABR>

A:Note: the authors translated the codon GAA for residue 108 as Gly

R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Friedman, J.; Gospodarowicz, L

EMBO J. 5, 2523-2528, 1986

A:Title: Human basic fibroblast growth factor: nucleotide sequence and genomic organ

A:Reference number: S00297; MUID:87053817

A:Accession: S00297

A>Status: not compared with conceptual translation

A:Molecule type: DNA

A:Residues: 1-155 <AB2>

A:Note: the authors translated the codon GAA for residue 108 as Gly

R:Shimoyama, Y.; Gotoh, M.; Ino, Y.; Sakamoto, M.; Kato, K.; Hirohashi, S.

Jpn. J. Cancer Res. 82, 1263-1270, 1991

A:Title: Characterization of high-molecular-mass forms of basic fibroblast growth fa

rcinogenesis.
A:Reference number: A54316; MUID:92091228
A:Accession: A54316
A:Molecule type: protein
A:Residues: 'XX',86-88,'X',90-91,'X',93-95 <SH3>
A:Experimental source: C-1121 hepatocellular carcinoma cell line
A:Note: sequence extracted from NCBI backbone (NCBIP:71595)
A:Accession: B54316
A:Molecule type: protein
A:Residues: 'XXX',19,'X',21-29 <SH2>
A:Note: sequence extracted from NCBI backbone (NCBIP:71594)
R:Feige, J.J.; Bradley, J.D.; Fryburg, K.; Farris, J.; Cousens, L.C.; Barr, P.J.; Baird, J. Cell Biol. 109, 3105-3114, 1989
A:Title: Differential effects of heparin, fibronectin, and laminin on the phosphorylation of heparin
A:Reference number: A33624; MUID:90078343
A:Accession: A33624
A:Status: preliminary
A:Molecule type: protein
A:Residues: 57-210 <FEI>
R:Story, M.T.; Esch, F.; Shimasaki, S.; Sasse, J.; Jacobs, S.C.; Lawson, R.K.
Biochem. Biophys. Res. Commun. 142, 702-709, 1987
A:Title: Amino-terminal sequence of a large form of basic fibroblast growth factor isolate
A:Reference number: A25824; MUID:87156686
A:Accession: A25824
A:Molecule type: protein
A:Residues: 57-77 <STO>
A:Experimental source: prostate
R:Gimenez-Gallego, G.; Conn, G.; Hatcher, V.B.; Thomas, K.A.
Biochem. Biophys. Res. Commun. 135, 541-548, 1986
A:Title: Human brain-derived acidic and basic fibroblast growth factors: amino terminal
A:Reference number: A90122; MUID:86186784
A:Accession: B24243
A:Molecule type: protein
A:Residues: 65-102,'X',104-105 <GIN>
A:Experimental source: brain
R:Gautschi, P.; Frater-Schroder, M.; Bohlen, P.
FEBS Lett. 204, 203-207, 1986
A:Title: Partial molecular characterization of endothelial cell mitogens from human brain
A:Reference number: A91364; MUID:86275260
A:Accession: B24301
A:Molecule type: protein
A:Residues: 65-88,'X',90-98,'X',100 <GAU>
R:Sommer, A.; Brewer, M.T.; Thompson, R.C.; Moscatelli, D.; Presta, M.; Rifkin, D.B.
Biochem. Biophys. Res. Commun. 144, 543-550, 1987
A:Title: A form of human basic fibroblast growth factor with an extended amino terminus.
A:Reference number: S42242; MUID:87213238
A:Accession: S42242
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 54-210 <SOM>
A:Cross-references: EMBL:M17599; NID:g183086; PIDN:AAA52534.1; PID:g183087
R:Pantoliano, M.W.; Horlick, R.A.; Springer, B.A.; Van Dyk, D.E.; Tobery, T.; Wetmore, D.
Biochemistry 33, 10229-10248, 1994
A:Title: Multivalent ligand-receptor binding interactions in the fibroblast growth factor
A:Reference number: A55784; MUID:94347757
A:Accession: B55784
A:Molecule type: protein
A:Residues: 54-71 <PAN>
R:Watson, R.; Anthony, F.; Pickett, M.; Lambden, P.; Masson, G.M.; Thomas, E.J.
Biochem. Biophys. Res. Commun. 187, 1227-1231, 1992
A:Title: Reverse transcription with nested polymerase chain reaction shows expression of
clients.
A:Reference number: 152267; MUID:93038590
A:Accession: 152267
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 95-182 <RES>
A:Cross-references: GB:S47380; NID:g256535; PIDN:AAD13853.1; PID:g4261553
R:Patriy, V.; Bugler, B.; Amalric, F.; Prome, J.C.; Prats, H.
FEBS Lett. 349, 23-28, 1994
A:Title: Purification and characterization of the 210-amino acid recombinant basic fibroblast
A:Reference number: S46253; MUID:94320639

A:Accession: S46253
A:Molecule type: protein
A:Residues: 39-53;65-88 <PAT>
A:Note: recombinant gene expressed in Escherichia coli
C:Genetics:
A:Gene: GDB:FGF2; FGF2
A:Cross-references: GDB:119910; OMIM:134920
A:Map position: 4q25-4q27
A:Start codon: CUG
C:Superfamily: fibroblast growth factor
C:Keywords: alternative initiators; angiogenesis; growth factor; heparin binding; mi
F11-210/Product: basic fibroblast growth factor, 22.5K form #status predicted <MA2>
F:65-210/Product: basic fibroblast growth factor, 18K form #status predicted <MA2>
F:82-86/Region: heparin binding #status predicted
F:171-174/Region: heparin binding #status predicted

Query Match 100.0%; Score 1118; DB 2; Length 210;
Best Local Similarity 100.0%; Pred. No. 1.4e-77;
Matches 210; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDGRGRALPGRLGGRGRAPERVGGGRGRTAAPRAAPARSGRPGAGTMAAGS 60
Db 1 MGDGRGRALPGRLGGRGRAPERVGGGRGRTAAPRAAPARSGRPGAGTMAAGS 60
QY 61 ITTLPALPEDGSGAFPPEHFKDPKRLCKNGEFLRIHPDGRVDGVREKSDPHIKLOLQ 120
Db 61 ITTLPALPEDGSGAFPPEHFKDPKRLCKNGEFLRIHPDGRVDGVREKSDPHIKLOLQ 120
QY 121 AEERGVSVIKVCANRYLAMKEDGRLASCVTDECFEERLESNNVNTYRSRKYTSWYV 180
Db 121 AEERGVSVIKVCANRYLAMKEDGRLASCVTDECFEERLESNNVNTYRSRKYTSWYV 180
QY 181 ALKRTGYKLGSKTGPQKAILFLPMSAKS 210
Db 181 ALKRTGYKLGSKTGPQKAILFLPMSAKS 210

RESULT 2

GKBOB

basic fibroblast growth factor precursor - bovine (fragment)

N:Alternate names: bFGF; kidney-derived growth factor; prostatiopin

C:Species: Bos primigenius taurus (cattle)

C>Date: 13-Aug-1986 #sequence_revision 02-Jun-1995 #text_change 24-Nov-1999

C:Accession: A24663; A32878; A33784; A61550; A61551; A60310; A61094; A01386; A60316;

R:Abraham, J.A.; Mergia, A.; Whang, J.L.; Tumolo, A.; Friedman, J.; Hjerrild, K.A.;

Science 233, 545-548, 1986

A:Title: Nucleotide sequence of a bovine clone encoding the angiogenic protein, basl

A:Reference number: A94290; MUID:86261806

A:Accession: A24663

A:Molecule type: mRNA

A:Residues: 3-157 <ABR>

A:Cross-references: GB:M13440; NID:g163049; PIDN:AAA30518.1; PID:g163050

A:Experimental source: pituitary gland

R:Abraham, J.A.; Whang, J.L.; Tumolo, A.; Mergia, A.; Fiddes, J.C.

Cold Spring Harb. Symp. Quant. Biol. 51, 657-668, 1986

A:Title: Human basic fibroblast growth factor: nucleotide sequence, genomic organiza

A:Reference number: A90924; MUID:87217066

A:Accession: A32878

A:Molecule type: mRNA

A:Residues: 3-157 <AB2>

R:Miller, P.G.; Li, Y.S.; Hoffman, R.M.; Kodner, C.M.; Siegel, N.R.; Deuel, T.F.

Biochem. Biophys. Res. Commun. 165, 1096-1103, 1989

A:Title: A novel 17 kD heparin-binding growth factor (HBGF-8) in bovine uterus: puri

A:Reference number: A33784; MUID:90121211

A:Accession: A33784

A:Molecule type: protein

A:Note: demonstration of a possible alternative initiator or splice junction

R:Bertolini, J.; Hearn, M.T.W.

Mol. Cell. Endocrinol. 51, 187-199, 1987
A:Title: Isolation, characterisation and tissue localisation of an N-terminal-trunca
A:Reference number: A61550; MUID:87247652

A:Accession: A61550
 A:Molecule type: protein
 A:Residues: 16-35 <BER>
 R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Gulliemln, R.
 Mol. Cell. Endocrinol. 49, 189-194, 1987
 A:Title: Isolation and partial characterization of basic fibroblast growth factor from R
 A:Reference number: A61551; MUID:87162856
 A:Accession: A61551
 A:Molecule type: protein
 A:Residues: 27-35, 'X', 37-41 <UE3>
 A:Experimental source: testes
 A:Note: this form appears to be identical to the renal form
 R:Ueno, N.; Baird, A.; Esch, F.; Shimasaki, S.; Ling, N.; Gulliemln, R.
 Regul. Pept. 16, 135-145, 1986
 A:Title: Purification and partial characterization of a mitogenic factor from bovine liv
 A:Reference number: A60310; MUID:87119165
 A:Accession: A60310
 A:Molecule type: protein
 A:Residues: 23-35, 'X', 37-42 <UEN>
 A:Experimental source: liver
 R:Ueno, N.; Baird, A.; Esch, F.; Ling, N.; Gulliemln, R.
 Biochem. Biophys. Res. Commun. 138, 580-588, 1986
 A:Title: Isolation of an amino terminal extended form of basic fibroblast growth factor
 A:Reference number: A24819; MUID:86295737
 A:Contents: annotation
 A:Note: the amino end of this form was blocked; the peptide composition matched what was
 R:Gospodarowicz, D.; Baird, A.; Cheng, J.; Lui, G.M.; Esch, F.; Bohlen, P.
 Endocrinology 118, 82-90, 1986
 A:Title: Isolation of fibroblast growth factor from bovine adrenal gland: physicochemical
 A:Reference number: A61094; MUID:86081530
 A:Accession: A61094
 A:Molecule type: protein
 A:Residues: 12-25, 27-35, 'X', 37-40 <GOS>
 A:Experimental source: adrenal gland
 R:Esch, F.; Baird, A.; Ling, N.; Ueno, N.; Hill, F.; Denoroy, L.; Klepper, R.; Gospodarc
 Proc. Natl. Acad. Sci. U.S.A. 82, 6507-6511, 1985
 A:Title: Primary structure of bovine pituitary basic fibroblast growth factor (FGF) and
 A:Reference number: A01386; MUID:86016731
 A:Accession: A01386
 A:Molecule type: protein
 A:Residues: 12-157 <ESC>
 A:Experimental source: pituitary gland
 R:Baird, A.; Esch, F.; Bohlen, P.; Ling, N.; Gospodarowicz, D.
 Regul. Pept. 12, 201-213, 1985
 A:Title: Isolation and partial characterization of an endothelial cell growth factor fro
 A:Reference number: A60316; MUID:86095426
 A:Accession: A60316
 A:Molecule type: protein
 A:Residues: 27-35, 'X', 37-43 <BAL>
 A:Experimental source: kidney
 R:Bohlen, P.; Baird, A.; Esch, F.; Ling, N.; Gospodarowicz, D.
 Proc. Natl. Acad. Sci. U.S.A. 81, 5364-5368, 1984
 A:Title: Isolation and partial molecular characterization of pituitary fibroblast growth
 A:Reference number: A22054; MUID:84298139
 A:Accession: A22054
 A:Molecule type: protein
 A:Residues: 12-26 <BOH>
 C:Comment: The acidic and basic fibroblast growth factors are the major endothelial-cell
 cell types in vitro (although bFGF is 30-100 times more potent than aFGF in stimulating t
 C:Comment: This protein binds heparin more strongly than does aFGF.
 C:Superfamily: fibroblast growth factor
 C:Keywords: alternative splicing; angiogenesis; blocked amino end; growth factor; hepari
 F:1-157/Product: basic fibroblast growth factor, uterine form #status predicted <MAT1>
 F:12-157/Product: basic fibroblast growth factor, pituitary gamma form #status experiment
 F:16-157/Product: basic fibroblast growth factor, pituitary alpha form #status predicted
 F:23-157/Product: basic fibroblast growth factor, pituitary short form #status predicted
 F:27-157/Product: basic fibroblast growth factor, hepatic form #status experimental <MAT
 F:29-33, 118-121/Region: heparin binding #status predicted
 F:4/Modified site: blocked amino end (Ala) (in mature form pituitary gamma) (probably ac

Query Match

73.6%; Score 823; DB 1; Length 157;

Best Local Similarity 98.1%; Pred. No. 2, 1e-55;
 Matches 154; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
 QY 54 GTMAAGSITTLPALPEDGSGAAPPBGHEKDPKRLYCKNGGFELRIHPDGRVDGVRKSDP 113
 Db 1 GAMAGSITTLPALPEDGSGAAPPBGHEKDPKRLYCKNGGFELRIHPDGRVDGVRKSDP 60
 QY 114 HIKLOQAEERGVVSIVKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYTYRSR 173
 Db 61 HIKLOQAEERGVVSIVKVCANRYLAKMEDGRLLASKCVTDECFEERLESNNYTYRSR 120
 QY 174 KYTSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 210
 Db 121 KYSSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 157
 RESULT 3
 A48834
 basic fibroblast growth factor - chicken
 C:Species: Gallus gallus (chicken)
 C>Date: 01-Dec-1993 #sequence_revision 18-Nov-1994 #text_change 16-Jul-1999
 C:Accession: A48834; S23636
 R:Boija, A.Z.; Meljers, C.; Zeller, R.
 Dev. Biol. 157, 110-118, 1993
 A:Title: Expression of alternatively spliced bFGF first coding exons and antisense n
 A:Reference number: A48834; MUID:93246053
 A:Accession: A48834
 A:Status: preliminary
 A:Molecule type: nucleic acid
 A:Residues: 1-189 <BOR>
 A:Experimental source: embryo
 A:Note: sequence extracted from NCBI backbone (NCBIN:131000, NCBIPI:131001)
 R:Mitrani, E.; Gruenbaum, Y.; Shohat, H.; Ziv, T.
 Development 109, 387-393, 1990
 A:Title: Fibroblast growth factor during mesoderm induction in the early chick embryo
 A:Reference number: S23636; MUID:90382254
 A:Accession: S23636
 A:Status: preliminary
 A:Molecule type: DNA
 A:Residues: 95-128 <MIT>
 A:Cross-references: EMBL:X56804; NID:962855; PIDN:CAA40139.1; PID:962856
 C:Superfamily: fibroblast growth factor

Query Match

Best Local Similarity 71.8%; Score 802.5; DB 2; Length 189;
 Matches 157; Conservative 5; Mismatches 18; Indels 7; Gaps 2;

QY 31 GRGRGTAPRAPAPARG--SRPGAGTM-----AAGSITTLPALPEDGSGAAPPBGHEK 83
 Db 3 GRGRGARAPALAAAGCGCRRGAAGARRMAAGAAGSITTLPALPDGSGAAPPBGHEK 62
 QY 84 PKRLYCKNGGFELRIHPDGRVDGVRKSDPHIKLOQAEERGVVSIVKVCANRYLAKMED 143
 Db 63 PKRLYCKNGGFELRIHPDGRVDGVRKSDPHIKLOQAEERGVVSIVKVCANRYLAKMED 122
 QY 144 GRLLASKCVTDECFEERLESNNYTYRSRKYTSWYVALKRTGYKLGSKTGPQKAILF 203
 Db 123 GRLLALKCATEECFEERLESNNYTYRSRKYSDWYVALKRTGYKPGPKTGPQKAILF 182
 QY 204 LPMSAKS 210
 Db 183 LPMSAKS 189
 RESULT 4
 A31674
 basic fibroblast growth factor precursor - rat
 N:Alternate names: bFGF
 C:Species: Rattus norvegicus (Norway rat)
 C>Date: 21-May-1990 #sequence_revision 21-May-1990 #text_change 16-Jul-1999
 C:Accession: A31674; S00876; S24309
 R:Shimasaki, S.; Emoto, N.; Koba, A.; Mercado, M.; Shibata, F.; Cooksey, K.; Baird,

Db 58 VDGIRESKDPNKLQLOAEERGVSVIKGVCANRYLAMKEDGRLALAKYTECEFFERLE 117
OY 164 SNNNTYRSRKYTSWYVALKRTGQYKLSKTGPGOKAILFLPMSAKS 210
Db 118 SNNNTYRSRKYSNWYVALKRTGQYKLSKTGPGOKAILFLPMSAKS 164

RESULT 8

146711
fibroblast growth factor - rabbit (fragment)
C:Species: Oryctolagus cuniculus (domestic rabbit)
C:Date: 14-Feb-1997 #sequence_revision 14-Feb-1997 #text_change 16-Jul-1999
C:Accession: 146711
R:Winkles, J.A.; Friesel, R.; Alberts, G.F.; Janat, M.P.; Liau, G.
Am. J. Pathol. 143, 518-527, 1993
A:Title: Elevated expression of basic fibroblast growth factor in an immortalized rabbit
A:Reference number: 146711; MUID:93343209
A:Accession: 146711
A:Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-137 <WIN>
A:Cross-references: GB:L12034; NID:g165014; PIDN:AAA31248.1; PID:g165015
C:Superfamily: fibroblast growth factor

Query Match 66.0%; Score 738; DB 2; Length 137;
Best Local Similarity 99.3%; Pred. No. 4.8e-49;
Matches 136; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 65 PALPEDGSGAFPFGHFKDPKRLCYCKNGFFLRHPDGRVDGVRKSDPHIKLOQAEER 124
Db 1 PALPEDGSGAFPFGHFKDPKRLCYCKNGFFLRHPDGRVDGVRKSDPHIKLOQAEER 60
OY 125 GVVSIRKVCANRYLAMKEDGRLASKCVTDECFERLESNNNTYRSRKYTSWYVALKR 184
Db 61 GVVSIRKVCANRYLAMKEDGRLASKCVTDECFERLESNNNTYRSRKYTSWYVALKR 120
OY 185 TGOYKLGSKTGPQOKAI 201
Db 121 TGOYKLGSKTGPQOKAI 137

RESULT 9

A40117
basic fibroblast growth factor - African clawed frog
C:Species: Xenopus laevis (African clawed frog)
C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
C:Accession: A40117; A29618
R:Kimelman, D.; Abraham, J.A.; Haaparanta, T.; Palisi, T.M.; Kirschner, M.W.
Science 242, 1053-1056, 1988
A:Title: The presence of fibroblast growth factor in the frog egg: its role as a natural
A:Reference number: A40117; MUID:89058621
A:Accession: A40117
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-155 <KIM>
A:Cross-references: GB:M18067; NID:g214177; PIDN:AAA49726.1; PID:g214178; GB:M21092
R:Kimelman, D.; Kirschner, M.
Cell 51, 869-877, 1987
A:Title: Synergistic induction of mesoderm by FGF and TGF-beta and the identification of
A:Reference number: A29618; MUID:88052890
A:Accession: A29618
A:Molecule type: mRNA
A:Residues: 95-110,112-155 <K12>
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor

Query Match 61.4%; Score 687; DB 1; Length 155;
Best Local Similarity 83.9%; Pred. No. 3.9e-45;
Matches 130; Conservative 9; Mismatches 16; Indels 0; Gaps 0;

OY 56 MAGSTITLALPEDGSGAFPFGHFKDPKRLCYCKNGFFLRHPDGRVDGVRKSDPHI 115
Db 1 MAGSTITLPESEDEGNTPFSPGFDPKRLCYCKNGFFLRINSRGVDSRDSHI 60
OY 116 KLOQAEERGVSVIKGVCANRYLAMKEDGRLASKCVTDECFERLESNNNTYRSRKY 175
Db 61 KLOQAEERGVSVIKGITANRYLAMKEDGRLTSLRCITDECFERLEANNNTYRSRKY 120
OY 176 TSWYVALKRTGQYKLSKTGPGOKAILFLPMSAKS 210
Db 121 SSWYVALKRTGQYKNGSSTGPGOKAILFLPMSAKS 155

RESULT 10

A32484
basic fibroblast growth factor precursor, 25K - guinea pig (fragments)
C:Species: Cavia porcellus (guinea pig)
C:Date: 20-Oct-1989 #sequence_revision 20-Oct-1989 #text_change 15-Jun-1996
C:Accession: A32484
R:Sommer, A.; Moscatelli, D.; Rifkin, D.B.
Biochem. Biophys. Res. Commun. 160, 1267-1274, 1989
A:Title: An amino-terminally extended and post-translationally modified form of a 2;
A:Reference number: A32484; MUID:89273588
A:Accession: A32484
A:Status: preliminary; nucleic acid sequence not shown; not compared with conceptual
A:Molecule type: mRNA
A:Residues: 1-125 <SOM>
C:Superfamily: fibroblast growth factor

Query Match 47.5%; Score 531.5; DB 2; Length 125;
Best Local Similarity 61.4%; Pred. No. 1.8e-33;
Matches 113; Conservative 3; Mismatches 9; Indels 59; Gaps 4;

OY 27 VGGRGGRGTAAPRAAPARGSRPAGTMAAGSTITLALPEDGSGAFPFGHFKDPKR 86
Db 1 VGGRGGRGTAAPRAAPARGSRPAGTMAAGSTITLALPEDGSGAFPFGHFKDP-- 50
OY 87 LYCKNGFFLRHPDGRVDGVRKSDPHIKLOQAEERGVSVIKGVCANRYLAMKEDGRL 146
Db 51 ---NGGFELR-----LQLOAEDR----- 65

OY 147 LASKCVTDECFERLESNNNTYRSRKYTSWYVALKRTGQYKLSKTGPGOKAILFLPM 206
Db 66 ---CVTDECFERLESNNNTYRSRKYSSWYVALKRTGQYKLSKTGPGOKAILFLPM 121

OY 207 SAKS 210
Db 122 SAKS 125

RESULT 11

A60721
acidic fibroblast growth factor - golden hamster
N:Alternate names: heparin-binding growth factor 1
C:Species: Mesocricetus auratus (golden hamster)
C:Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #text_change 10-Sep-1999
C:Accession: A60721
R:Hall, J.A.; Harris, M.A.; Malark, M.; Mansson, P.E.; Zhou, H.; Harris, S.E.
J. Cell. Biochem. 43, 17-26, 1990
A:Title: Characterization of the hamster DDT-1 cell aFGF/HGBF-1 gene and cDNA and its
A:Reference number: A60721; MUID:90270291
A:Accession: A60721
A:Status: not compared with conceptual translation
A:Molecule type: DNA
A:Residues: 1-155 <HAL>
C:Superfamily: fibroblast growth factor
C:Keywords: growth factor; heparin binding

Query Match 37.4%; Score 418.5; DB 1; Length 155;
Best Local Similarity 54.8%; Pred. No. 7.8e-25;
Matches 86; Conservative 16; Mismatches 50; Indels 5; Gaps 2;

[illegible]

A;Molecule type: mRNA
A;Residues: 1-151 <GO>
A;Cross-references: EMBL:X14232; NID:g56351; PIDN:CAA32448.1; PID:g56352
C;Superfamily: Fibroblast growth factor
C;Keywords: growth factor; heparin binding

Query Match	36.2%;	Score 404.5;	DB 2;	Length 155;
Best Local Similarity	53.5%;	Pred. No. 8.9e-24;		
Matches 84;	Conservative 17;	Mismatches 51;	Indels 5;	Gaps 2;

```
OY      56 MAAGSITTLPALPEDGSGAEPFGHFKDPKRLCYCKNGGFLLRIHDPGRVDGVREKSDPHI 115
        || | | | | | | | | : : : | | | | | | | | | | | | | | | | |
Db      1 MAEGEITTFALTEFRFN--LPIGNKYKKPKLLYCNSNGHFLRILFDGTVDGTRDRSDQHI 57
OY      116 KLOLAERGVSSTIKVCANRYIAMKEDEGRLLASKCVTDECFFERLESNNYNTYRSRKY 175
        : | | | | | | | | : | | | : | | : : | | | | | | | | | | | |
Db      58 QOLSAESAGEVYIKGTETGOYLAMDTEGLLYGSQTPNBECFLFERLEENHYNTYTSSKH 117
OY      176 T--SWYVALKRTGOYKLGSKTGPCOKAILFLPMSAKS 210
        : : | | | | : | | | | | | | | | | : |
Db      118 AEKNWFVG LKKNCSCKRGPRTHYGOKAILFPLPVSS 154
```

RESULT 15
D37360

acidic fibroblast growth factor - mouse

C:\species: Mus musculus (house mouse)

C:\Date: 17-Apr-1993 #sequence_revision 17-Apr-1993 #text_change 16-Jul-1999
C:\Accession: D37360.105231

R;Hebert, J.M.; Basillco, C.; Goldfarb, M.; Haub, O.; Martin, G.R.

Dev. Biol. 138, 454-463, 1990

A; Reference number: A37360; NUID: 90201563

A/Status: preliminary

A;Molecule type: mRNA

A; Cross-references: GB:M30641; NID:q193284; PIDN:AAA376j8.1; PTD:q309236

R;Madlal, F.; Hackshaw, K.V.; Chiu, I.M.
Gene 179 331-335 | 1995

A; Title: Cloning and characterization of the mouse Fgf-1 gene.

A: Accession: JC5231
A: Reference number: JC5231; MUID: 97128312

A;Status: preliminary

A: molecule type: DNA
A: ResIdues: 1-155'<MAD>

A;Cross-references: GB:U36456

C;Genetics:

A;Gene: Fgf-1

C;Superfamily: fibroblast growth factor

Query Match	36.28;	Score 404.5;	DB 2;	Length 155;
Best Local Similarity	53.5%;	Pred. No. 8.9e-24;		
Matches 84; Conservative	17;	Mismatches 51;	Indels 5;	Gaps 2.

56 MAAGSITITLALPEDGGSGAFPPGHCKDPRKLYCKNGGFEFLRIHPDGRVDGVREKSDPHI 115

Oy		116	KLOIAEERGVYSIKGVCANRYLANKEDGRLLASKCVTDECFEEFERLESNNYNTYRSRKY	175
	:		: :	: : :
Db		58	QIQLSAESAGEVYIKGTETGOYLAMDTGLLGSGOTPNECLEFLERLEENHNNTYTSKHH	117

```
OY      176 T--SWYVALKRTGOYKLGSKTGPQKAILFLPMSAKS 210  
        :1:1 11:1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1:  
Db      118 AEKNWVGIKKNGSCCKRGPRTHGOKAIIFLPLPVSS 154
```

Sun Jun 2 18:28:48 2002

us-09-642-277a-1.rpt

Search completed: June 2, 2002, 18:02:18
Job time: 496 sec

GenCore version 4.5
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OM protein - protein search, using sw model

Run on: June 2, 2002, 17:54:02 ; Search time 28.4 Seconds

(without alignments)
180.612 Million cell updates/sec

Title: US-09-642-277a-1

Perfect score: 1118

Sequence: 1 MGDGRGRALPGRLGGRGR.....GSKTGPQKALFLPMASAKS 210

Scoring table:

BLOSUM62
Gapop 10.0 , Gapext 0.5

Searched: 231628 seqs, 24425594 residues

Total number of hits satisfying chosen parameters: 231628

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Database : Issued_Patents_AA.*

1: /cgn2_6/ptodata/2/1aa/5A.COMB.pep:*
2: /cgn2_6/ptodata/2/1aa/5B.COMB.pep:*
3: /cgn2_6/ptodata/2/1aa/6A.COMB.pep:*
4: /cgn2_6/ptodata/2/1aa/6B.COMB.pep:*
5: /cgn2_6/ptodata/2/1aa/PTUS.COMB.pep:*
6: /cgn2_6/ptodata/2/1aa/backfiles1.pep:*

Pred. No. is the number of results predicted by chance to have a
score greater than or equal to the score of the result being printed,
and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	1115	99.7	210	1	US-08-464-590A-14
2	1115	99.7	210	2	US-08-207-412B-9
3	1115	99.7	210	3	US-09-093-585-14
4	837	74.9	158	4	US-09-220-077C-2
5	835	74.7	235	1	US-08-078-683A-39
6	831	74.3	158	2	US-08-599-895-3
7	831	74.3	158	3	US-09-211-290-3
8	831	74.3	158	3	US-09-322-676-3
9	831	74.3	158	4	US-09-466-036A-3
10	830.5	74.3	432	1	US-07-959-369-8
11	830.5	74.3	432	2	US-08-836-854-20
12	827.5	74.0	432	1	US-07-959-369-9
13	826	73.9	155	1	US-07-959-369-6
14	826	73.9	155	1	US-07-842-177A-1
15	826	73.9	155	1	US-08-439-725A-10
16	826	73.9	155	1	US-08-325-632-1
17	826	73.9	155	1	US-08-462-169B-10
18	826	73.9	155	2	US-08-867-471-10
19	826	73.9	155	2	US-08-438-439C-14
20	826	73.9	155	2	US-08-951-822-28
21	826	73.9	155	3	US-09-103-079-10
22	826	73.9	155	3	US-08-705-245-6
23	826	73.9	155	3	US-08-897-924A-25
24	826	73.9	155	3	US-08-718-904-11
25	826	73.9	155	3	US-09-023-082A-17
26	826	73.9	155	3	US-09-030-613-3
27	826	73.9	155	4	US-09-098-628-2

28	826	73.9	155	4	US-09-451-905-3	Sequence 3, Appl1
29	826	73.9	155	4	US-09-368-951-28	Sequence 28, Appl1
30	826	73.9	155	5	PCR-US91-02186-2	Sequence 2, Appl1
31	826	73.9	155	6	5514566-8	Patent No. 5514566
32	823	73.6	155	1	US-07-959-369-7	Sequence 7, Appl1
33	821	73.4	154	2	US-08-438-439C-24	Sequence 24, Appl1
34	821	73.4	154	3	US-08-325-186-1	Sequence 1, Appl1
35	817	73.1	153	3	US-08-325-186-2	Sequence 2, Appl1
36	817	73.1	154	5	PCR-US91-02186-6	Sequence 6, Appl1
37	817	73.1	155	1	US-08-023-757-2	Sequence 2, Appl1
38	817	73.1	155	1	US-08-177-502-2	Sequence 2, Appl1
39	817	73.1	155	5	PCR-US91-02186-4	Sequence 4, Appl1
40	817	73.1	155	6	5514566-6	Patent No. 5514566
41	804	71.9	150	1	US-08-441-629-8	Sequence 8, Appl1
42	804	71.9	150	3	US-08-776-207-8	Sequence 8, Appl1
43	804	71.9	150	5	PCR-US95-09172-8	Sequence 8, Appl1
44	797	71.3	155	1	US-08-023-757-4	Sequence 4, Appl1
45	797	71.3	155	1	US-08-177-502-4	Sequence 4, Appl1

ALIGNMENTS

RESULT 1
US-08-464-590A-14
Sequence 14, Application US/08464590A
Patent No. 5763214
GENERAL INFORMATION:
APPLICANT: HU, JING-SHAN
APPLICANT: ROSEN, CRAIG A.
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR-11
NUMBER OF SEQUENCES: 17
CORRESPONDENCE ADDRESSES:
ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI,
ADDRESSEE: STEWART & OLSTEIN
STREET: 6 BECKER FARM ROAD
CITY: ROSELAND
STATE: NJ
COUNTRY: US
ZIP: 07068
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/464,590A
FILING DATE: 05-JUN-1995
CLASSIFICATION: 536
ATTORNEY/AGENT INFORMATION:
NAME: MULLINS, J. G.
REGISTRATION NUMBER: 30,073
REFERENCE/DOCKET NUMBER: 325800-438
TELECOMMUNICATION INFORMATION:
TELEPHONE: (201) 994-1700
TELEFAX: (201) 994-1744
INFORMATION FOR SEQ ID NO: 14:
SEQUENCE CHARACTERISTICS:
LENGTH: 210 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-464-590A-14

Query Match 99.7%; Score 1115; DB 1; Length 210;
Best local Similarity 99.5%; Pred. No. 1.2e-92;
Matches 209; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDGRGRALPGRLGGRGRAPERVGGRGGRGTAAAPRAAPAGSRPGPAGTMAAGS 60
Db 1 LGDRGRGRALPGRLGGRGRAPERVGGRGGRGTAAAPRAAPAGSRPGPAGTMAAGS 60

OY 61 ITTLPALPEDGSGAPPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPHIKLOLQ 120
|||||
Db 61 ITTLPALPEDGSGAPPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPHIKLOLQ 120
OY 121 AERGVVSIGVCANRYLAMKEDGRLASKCVTDECFEERLESNNNTYRSRKYTSWYV 180
|||||
Db 121 AERGVVSIGVCANRYLAMKEDGRLASKCVTDECFEERLESNNNTYRSRKYTSWYV 180
OY 181 ALKRTGYKLGSKTGPCKAILFLPMSAKS 210
|||||
Db 181 ALKRTGYKLGSKTGPCKAILFLPMSAKS 210

RESULT 2

US-08-207-412B-9
; Sequence 9, Application US/08207412B
; Patent No. 5817485
; GENERAL INFORMATION:
; APPLICANT: Hu, Jing-Shan
; TITLE OF INVENTION: Fibroblast Growth Factor-10
; NUMBER OF SEQUENCES: 15
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Carella, Byrne, Bain, Gilfillan, Cecchi,
; STREET: 6 Becker Farm Road
; CITY: Roseland
; STATE: NJ
; COUNTRY: USA
; ZIP: 07068-1739
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/207,412B
; FILING DATE: 08-MAR-1994
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: Ferraro, Gregory D
; REGISTRATION NUMBER: 36,134
; REFERENCE/DOCKET NUMBER: 325800-100
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 201-994-1700
; TELEFAX: 201-994-1744
; INFORMATION FOR SEQ ID NO: 9:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 210 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; US-08-207-412B-9

Query Match 99.7%; Score 1115; DB 2; Length 210;
Best Local Similarity 99.5%; Pred. No. 1.2e-92;
Matches 209; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 MGDGRGRALPGRLGGRGRAPRERVGGRGGRGTAAAPRAAPARAGSRPGPAGTMAAGS 60
:|||||
Db 1 LCDRGRGRALPGRLGGRGRAPRERVGGRGGRGTAAAPRAAPARAGSRPGPAGTMAAGS 60
OY 61 ITTLPALPEDGSGAPPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPHIKLOLQ 120
|||||
Db 61 ITTLPALPEDGSGAPPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPHIKLOLQ 120
OY 121 AERGVVSIGVCANRYLAMKEDGRLASKCVTDECFEERLESNNNTYRSRKYTSWYV 180
|||||
Db 121 AERGVVSIGVCANRYLAMKEDGRLASKCVTDECFEERLESNNNTYRSRKYTSWYV 180
OY 181 ALKRTGYKLGSKTGPCKAILFLPMSAKS 210

Db 181 ALKRTGYKLGSKTGPCKAILFLPMSAKS 210
|||||

RESULT 3

US-09-093-585-14
; Sequence 14, Application US/09093585
; Patent No. 6110893
; GENERAL INFORMATION:
; APPLICANT: HU, JING-SHAN
; APPLICANT: ROSEN, CRAIG A.
; TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR-11
; NUMBER OF SEQUENCES: 17
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI,
; ADDRESSEE: STEWART & OLSTEIN
; STREET: 6 BECKER FARM ROAD
; CITY: ROSELAND
; STATE: NJ
; COUNTRY: US
; ZIP: 07068
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/093,585
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 08/464,590
; FILING DATE: 05-JUN-1995
; ATTORNEY/AGENT INFORMATION:
; NAME: MULHINS, J. G.
; REGISTRATION NUMBER: 30,073
; REFERENCE/DOCKET NUMBER: 325800-438
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (201) 994-1700
; TELEFAX: (201) 994-1744
; INFORMATION FOR SEQ ID NO: 14:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 210 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; US-09-093-585-14

Query Match 99.7%; Score 1115; DB 3; Length 210;
Best Local Similarity 99.5%; Pred. No. 1.2e-92;
Matches 209; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

OY 1 MGDGRGRALPGRLGGRGRAPRERVGGRGGRGTAAAPRAAPARAGSRPGPAGTMAAGS 60
:|||||
Db 1 LCDRGRGRALPGRLGGRGRAPRERVGGRGGRGTAAAPRAAPARAGSRPGPAGTMAAGS 60
OY 61 ITTLPALPEDGSGAPPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPHIKLOLQ 120
|||||
Db 61 ITTLPALPEDGSGAPPPGHFKDPKRLCYCKNGFFLRHPDGRVDGVREKSDPHIKLOLQ 120
OY 121 AERGVVSIGVCANRYLAMKEDGRLASKCVTDECFEERLESNNNTYRSRKYTSWYV 180
|||||
Db 121 AERGVVSIGVCANRYLAMKEDGRLASKCVTDECFEERLESNNNTYRSRKYTSWYV 180
OY 181 ALKRTGYKLGSKTGPCKAILFLPMSAKS 210
|||||
Db 181 ALKRTGYKLGSKTGPCKAILFLPMSAKS 210

RESULT 4

US-09-220-077C-2

Sequence 2, Application US/09220077C
Patent No. 6274712
GENERAL INFORMATION:
APPLICANT: Springer, Barry A.
APPLICANT: Pantoliano, Michael W.
APPLICANT: Sharp, Celia M.
TITLE OF INVENTION: Analogs of Human basic fibroblast growth factor
FILE REFERENCE: 1503.0220001
CURRENT APPLICATION NUMBER: US/09/220,077C
CURRENT FILING DATE: 1998-12-23
PRIOR APPLICATION NUMBER: US 60/068,667
PRIOR FILING DATE: 1997-12-23
NUMBER OF SEQ ID NOS: 4
SOFTWARE: Patentin version 3.0
SEQ ID NO 2
LENGTH: 158
TYPE: PRT
ORGANISM: Homo sapiens
US-09-220-077C-2

Query Match 74.9%; Score 837; DB 4; Length 158;
Best Local Similarity 100.0%; Pred. No. 6.7e-68;
Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 54 GTMAAGSITLPLPEDGSGAFPPGHFKDPKRLYCKNGFFLRHPDGRVDGVREKSDP 113
DB 2 GTMAAGSITLPLPEDGSGAFPPGHFKDPKRLYCKNGFFLRHPDGRVDGVREKSDP 61
QY 114 HIKLOIAEERGVSVIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSR 173
DB 62 HIKLOIAEERGVSVIKGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSR 121
QY 174 KYTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 122 KYTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 158

RESULT 5
US-09-078-683A-39
Sequence 39, Application US/08078683A
Patent No. 5486599
GENERAL INFORMATION:
APPLICANT: Saunders, Scott
APPLICANT: Benfield, Merton
APPLICANT: Kato, Masato
TITLE OF INVENTION: Construction and Use of Synthetic
NUMBER OF SEQUENCES: 43
CORRESPONDENCE ADDRESS:
ADDRESSEE: LAHIVE & COCKFIELD
STREET: 60 State Street
CITY: Boston
STATE: MA
COUNTRY: USA
ZIP: 02109
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: ASCII (text)
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/078,683A
FILING DATE: 17-JUN-1993
CLASSIFICATION: 435
ATTORNEY/AGENT INFORMATION:
NAME: Vincent, Matthew P.
REGISTRATION NUMBER: 36,709
REFERENCE/DOCKET NUMBER: CME-062
TELECOMMUNICATION INFORMATION:
TELEPHONE: (617) 227-7400
TELEFAX: (617) 227-5941
INFORMATION FOR SEQ ID NO: 39:

SEQUENCE CHARACTERISTICS:
LENGTH: 235 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: peptide
FRAGMENT TYPE: internal
US-08-078-683A-39

Query Match 74.7%; Score 835; DB 1; Length 235;
Best Local Similarity 81.0%; Pred. No. 1.6e-67;
Matches 166; Conservative 2; Mismatches 19; Indels 18; Gaps 3;

QY 24 PERVGGRG-----RGRGTAA-----PRAPAA-----RGRPGPAGTMAAGSITTL 65
DB 31 PEDQDGGDDSDNFSGGTGLPDTLSRQTPSTWKDVMLTATPTAPEPTSAAGSITTL 90
QY 66 ALPEDGSGAFPPGHFKDPKRLYCKNGFFLRHPDGRVDGVREKSDPHIKLOIAEERG 125
DB 91 ALPEDGSGAFPPGHFKDPKRLYCKNGFFLRHPDGRVDGVREKSDPHIKLOIAEERG 150
QY 126 VVSIRGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKRT 185
DB 151 VVSIRGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRKYTSWYVALKRT 210
QY 186 GQYKLGSKTGPQKAILFLPMSAKS 210
DB 211 GQYKLGSKTGPQKAILFLPMSAKS 235

RESULT 6
US-08-599-895-3
Sequence 3, Application US/08599895
Patent No. 5891855
GENERAL INFORMATION:
APPLICANT: Florjanczyk, Robert Z.
TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
NUMBER OF SEQUENCES: 13
CORRESPONDENCE ADDRESS:
ADDRESSEE: SEED and BERRY LLP
STREET: 6300 Columbia Center, 701 Fifth Avenue
CITY: Seattle
STATE: Washington
COUNTRY: USA
ZIP: 98104-7092
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patentin Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/599,895
FILING DATE: 31-JAN-1996
CLASSIFICATION: 514
ATTORNEY/AGENT INFORMATION:
NAME: No. 5891855tenburg Ph.D., Carol
REGISTRATION NUMBER: 39,317
REFERENCE/DOCKET NUMBER: 760100.416
TELECOMMUNICATION INFORMATION:
TELEPHONE: (206) 622-4900
TELEFAX: (206) 682-6031
INFORMATION FOR SEQ ID NO: 3:
SEQUENCE CHARACTERISTICS:
LENGTH: 158 amino acids
TYPE: amino acid
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-599-895-3

Query Match 74.3%; Score 831; DB 2; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.3e-67;
Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 55 TMAAGSITTLPALPEDGSGAAPPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPH 114
DB 3 TMAAGSITTLPALPEDGSGAAPPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPH 62
OY 115 IKILOAEEERGVSIGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 174
DB 63 IKILOAEEERGVSIGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 122
OY 175 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 123 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 158

RESULT 7

US-09-211-290-3
; Sequence 3, Application US/09211290
; Patent No. 6071885
; GENERAL INFORMATION:
; APPLICANT: Floorkiewicz, Robert Z.
; TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
; NUMBER OF SEQUENCES: 13
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: SEED and BERRY LLP
; STREET: 6300 Columbia Center, 701 Fifth Avenue
; CITY: Seattle
; STATE: Washington
; COUNTRY: USA
; ZIP: 98104-7092
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/211,290
; FILING DATE: 12-DEC-1998
; CLASSIFICATION:
; ATTORNEY/AGENT INFORMATION:
; NAME: Maki, David J.
; REGISTRATION NUMBER: 31,392
; REFERENCE/DOCKET NUMBER: 200124.401D1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (206) 622-4900
; TELEFAX: (206) 682-6031
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 158 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; US-09-211-290-3

Query Match 74.3%; Score 831; DB 3; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.3e-67;
Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 55 TMAAGSITTLPALPEDGSGAAPPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPH 114
DB 3 TMAAGSITTLPALPEDGSGAAPPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPH 62
OY 115 IKILOAEEERGVSIGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 174
DB 63 IKILOAEEERGVSIGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 122
OY 175 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 123 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 158

RESULT 8
US-09-322-676-3

; Sequence 3, Application US/09322676
; Patent No. 6107283
; GENERAL INFORMATION:
; APPLICANT: Floorkiewicz, Robert Z.
; TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
; NUMBER OF SEQUENCES: 13
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: SEED and BERRY LLP
; STREET: 6300 Columbia Center, 701 Fifth Avenue
; CITY: Seattle
; STATE: Washington
; COUNTRY: USA
; ZIP: 98104-7092
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/09/322,676
; FILING DATE:
; CLASSIFICATION:
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 09/211,290
; FILING DATE: 12-DEC-1998
; ATTORNEY/AGENT INFORMATION:
; NAME: Maki, David J.
; REGISTRATION NUMBER: 31,392
; REFERENCE/DOCKET NUMBER: 200124.401D1
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (206) 622-4900
; TELEFAX: (206) 682-6031
; INFORMATION FOR SEQ ID NO: 3:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 158 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: protein
; US-09-322-676-3

Query Match 74.3%; Score 831; DB 3; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.3e-67;
Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 55 TMAAGSITTLPALPEDGSGAAPPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPH 114
DB 3 TMAAGSITTLPALPEDGSGAAPPFGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPH 62
OY 115 IKILOAEEERGVSIGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 174
DB 63 IKILOAEEERGVSIGVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSRK 122
OY 175 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 123 YTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 158

RESULT 9
US-09-466-036A-3
; Sequence 3, Application US/09466036A
; Patent No. 6281197
; GENERAL INFORMATION:
; APPLICANT: Floorkiewicz, Robert Z.
; TITLE OF INVENTION: INHIBITORS OF LEADERLESS PROTEIN EXPORT
; NUMBER OF SEQUENCES: 13
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: SEED and BERRY LLP
; STREET: 6300 Columbia Center, 701 Fifth Avenue
; CITY: Seattle
; STATE: Washington
; COUNTRY: USA
; ZIP: 98104-7092

COMPUTER READABLE FORM:

MEDIUM TYPE: floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.30

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/09/466,036A

FILING DATE: 17-Dec-2001

CLASSIFICATION: <Unknown>

PRIOR APPLICATION DATA:

APPLICATION NUMBER: US 09/211,290

FILING DATE: <Unknown>

ATTORNEY/AGENT INFORMATION:

NAME: Makl, David J.

REGISTRATION NUMBER: 31,392

REFERENCE/DOCKET NUMBER: 200124.401D1

TELECOMMUNICATION INFORMATION:

TELEPHONE: (206) 622-4900

TELEFAX: (206) 682-6031

INFORMATION FOR SEQ ID NO: 3:

SEQUENCE CHARACTERISTICS:

LENGTH: 158 amino acids

TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: protein

SEQUENCE DESCRIPTION: SEQ ID NO: 3:

US-09-466-036A-3

Query Match 74.3%; Score 831; DB 4; Length 158;

Best Local Similarity 100.0%; Pred. No. 2.3e-67;

Matches 156; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 55 TMAAGSITTLPALPEDGSGAFPPGHEKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPH 114

Db 3 TMAAGSITTLPALPEDGSGAFPPGHEKDPKRLYCKNGGFFLRHPDGRVDGVRKSDPH 62

QY 115 IKLQIAEERGVSVIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRK 174

Db 63 IKLQIAEERGVSVIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRK 122

QY 175 YTSWYVALKRTGQYKLGSKTGPCOKAILFLPMSAKS 210

Db 123 YTSWYVALKRTGQYKLGSKTGPCOKAILFLPMSAKS 158

RESULT 10

US-07-959-369-8

Sequence 8, Application US/07959369

Patent No. 5302701

GENERAL INFORMATION:

APPLICANT: Hidetaka HASHI et al.

TITLE OF INVENTION: No. 5302701el Functional Polypeptide

NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:

ADDRESSEE: Wenderoth, Lind & Ponack

STREET: 805 Fifteenth Street, N.W., #700

CITY: Washington

STATE: D.C.

COUNTRY: U.S.A.

ZIP: 20005

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 5.25 inch, 500 kb

COMPUTER: IBM Compatible

OPERATING SYSTEM: MS-DOS

SOFTWARE: Wordperfect 5.1

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/959,369

FILING DATE: 19921013

CLASSIFICATION: 530

PRIOR APPLICATION DATA:

APPLICATION NUMBER:

FILING DATE:

ATTORNEY/AGENT INFORMATION:

NAME: Warren M. Cheek, Jr.

REGISTRATION NUMBER: 33,367

REFERENCE/DOCKET NUMBER:

TELECOMMUNICATION INFORMATION:

TELEPHONE: 202-371-8850

TELEFAX:

INFORMATION FOR SEQ ID NO: 8:

SEQUENCE CHARACTERISTICS:

LENGTH: 432 amino acids

TYPE: AMINO ACID

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: polypeptide

HYPOTHETICAL:

ANTI-SENSE:

FRAGMENT TYPE:

ORIGINAL SOURCE:

ORGANISM:

STRAIN:

INDIVIDUAL ISOLATE:

DEVELOPMENTAL STAGE:

HAPLOTYPE:

TISSUE TYPE:

CELL TYPE:

CELL LINE:

ORGANELLE:

IMMEDIATE SOURCE:

LIBRARY:

CLONE:

POSITION IN GENOME:

CHROMOSOME/SEGMENT:

MAP POSITION:

UNITS:

FEATURE:

NAME/KEY:

LOCATION:

IDENTIFICATION METHOD:

OTHER INFORMATION:

PUBLICATION INFORMATION:

AUTHORS:

TITLE:

JOURNAL:

VOLUME:

ISSUE:

PAGES:

DATE:

DOCUMENT NUMBER:

FILING DATE:

PUBLICATION DATE:

RELEVANT RESIDUES IN SEQ ID NO:

US-07-959-369-8

Query Match 74.3%; Score 830.5; DB 1; Length 432;

Best Local Similarity 89.4%; Pred. No. 8.5e-67;

Matches 160; Conservative 4; Mismatches 14; Indels 1; Gaps 1;

QY 33 GRGTAPRAAPARGSRPG-PAGTMAAGSITTLPALPEDGSGAFPPGHEKDPKRLYCKN 91

Db 254 GRGDSAPSSKPIISINRYTEIDKPSMAAGSITTLPALPEDGSGAFPPGHEKDPKRLYCKN 313

QY 92 GGFELRIHPDGRVDGVRKSDPHIKLQIAEERGVSVIKVCANRYLAMKEDGRLASKC 151

Db 314 GGFELRIHPDGRVDGVRKSDPHIKLQIAEERGVSVIKVCANRYLAMKEDGRLASKC 373

QY 152 VTDECFEERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPCOKAILFLPMSAKS 210

Db 374 VTDECFEERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPCOKAILFLPMSAKS 432

RESULT 11

US-08-836-854-20

; Sequence 20, Application US/08836854
; Patent No. 5824547

; GENERAL INFORMATION:

; APPLICANT: HASHINO, Kimikazu

; APPLICANT: MATSUSHITA, Hideyuki

; APPLICANT: KATO, Ikunoshin

; TITLE OF INVENTION: METHOD OF PRODUCTION OF TRANSFECTED CELLS

; NUMBER OF SEQUENCES: 21

; CORRESPONDENCE ADDRESS:

; ADDRESSEE: Browdy and Nelmark

; STREET: 419 Seventh Street N.W. Ste. 300

; CITY: Washington

; STATE: D.C.

; COUNTRY: USA

; ZIP: 20004

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Floppy disk

; COMPUTER: IBM PC compatible

; OPERATING SYSTEM: PC-DOS/MS-DOS

; SOFTWARE: Patent Release #1.0, Version #1.30

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/08/836,854

; FILING DATE:

; CLASSIFICATION: 435

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: PCT/JP95/02425

; FILING DATE: 29-NOV-1995

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER: 317721/1994

; FILING DATE: 29-NOV-1994

; ATTORNEY/AGENT INFORMATION:

; NAME: Browdy, Roger L.

; REGISTRATION NUMBER: 25,618

; REFERENCE/DOCKET NUMBER: HASHINO-1

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: (202) 628-5197

; TELEFAX: (202) 737-3528

; INFORMATION FOR SEQ ID NO: 20:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 432 amino acids

; TYPE: amino acid

; STRANDEDNESS: single

; TOPOLOGY: linear

; MOLECULE TYPE: peptide

; US-08-836-854-20

Query Match 74.3%; Score 830.5; DB 2; Length 432;

Best Local Similarity 89.4%; Pred. No. 8.5e-67;

Matches 160; Conservative 4; Mismatches 14; Indels 1; Gaps 1;

OY 33 GRGTAPRAAPARGSRPG-PAGTMAAGSITTLPALPEDGSGAFPFGHFKDPKRLAYCKN 91

Db 254 GRGDSPPASSKPIISINRYTEIDKPSMAAGSITTLPALPEDGSGAFPFGHFKDPKRLAYCKN 313

OY 92 GGFLIRIHPDGRVDGVRKESDPHIKQLQAEERGVVSIGVCANRYLAMKEDGRLASKC 151

Db 314 GGFLIRIHPDGRVDGVRKESDPHIKQLQAEERGVVSIGVCANRYLAMKEDGRLASKC 373

OY 152 VTDECFEERLESNNYNTYRSKRYTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210

Db 374 VTDECFEERLESNNYNTYRSKRYTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 432

RESULT 12

US-07-959-369-9

; Sequence 9, Application US/07959369

; Patent No. 5302701

; GENERAL INFORMATION:

; APPLICANT: Hidetaka HASHI et al.

; TITLE OF INVENTION: NO. 5302701el Functional Polypeptide

; NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESS:

; ADDRESSEE: Wenderoth, Lind & Ponack

; STREET: 805 Fifteenth Street, N.W., #700

; CITY: Washington

; STATE: D.C.

; COUNTRY: U.S.A.

; ZIP: 20005

; COMPUTER READABLE FORM:

; MEDIUM TYPE: Diskette, 5.25 inch, 500 kb

; COMPUTER: IBM compatible

; OPERATING SYSTEM: MS-DOS

; SOFTWARE: Wordperfect 5.1

; CURRENT APPLICATION DATA:

; APPLICATION NUMBER: US/07/959,369

; FILING DATE: 19921013

; CLASSIFICATION: 530

; PRIOR APPLICATION DATA:

; APPLICATION NUMBER:

; FILING DATE:

; ATTORNEY/AGENT INFORMATION:

; NAME: Warren M. Cheek, Jr.

; REGISTRATION NUMBER: 33,367

; REFERENCE/DOCKET NUMBER:

; TELECOMMUNICATION INFORMATION:

; TELEPHONE: 202-371-8850

; TELEFAX:

; TELEX:

; INFORMATION FOR SEQ ID NO: 9:

; SEQUENCE CHARACTERISTICS:

; LENGTH: 432 amino acids

; TYPE: AMINO ACID

; STRANDEDNESS: single

; TOPOLOGY: linear

; MOLECULE TYPE: polypeptide

; HYPOTHETICAL:

; ANTI-SENSE:

; FRAGMENT TYPE:

; ORIGINAL SOURCE:

; ORGANISM:

; STRAIN:

; INDIVIDUAL ISOLATE:

; DEVELOPMENTAL STAGE:

; HAPLOTYPE:

; TISSUE TYPE:

; CELL TYPE:

; CELL LINE:

; ORGANELLE:

; IMMEDIATE SOURCE:

; LIBRARY:

; CLONE:

; POSITION IN GENOME:

; CHROMOSOME/SEGMENT:

; MAP POSITION:

; UNITS:

; FEATURE:

; NAME/KEY:

; LOCATION:

; IDENTIFICATION METHOD:

; OTHER INFORMATION:

; PUBLICATION INFORMATION:

; AUTHORS:

; TITLE:

; JOURNAL:

; VOLUME:

; ISSUE:

; PAGES:

; DATE:

; DOCUMENT NUMBER:

; FILING DATE:

; PUBLICATION DATE:

; RELEVANT RESIDUES IN SEQ ID NO:

; US-07-959-369-9

Query Match 74.0%; Score 827.5; DB 1; Length 432;
Best Local Similarity 88.8%; Pred. No. 1.6e-66;
Matches 159; Conservative 5; Mismatches 14; Indels 1; Gaps 1;

QY 33 GGTAAFPRAAPARGSRPG-PAGTMAAGSITTLPALPEDGSGAPPFGHFKDPKRLCKN 91
||| : | : | : |||||
Db 254 GRGDSPASSKPISTINRYFTIDKPSMAAGSITTLPALPEDGSGAPPFGHFKDPKRLCKN 313
QY 92 GGFELRIHPDGRVDGVRKSDPHIKLQLAERGVSIGVCANRYLAMKEDGRLLASKC 151
|||||
Db 314 GGFELRIHPDGRVDGVRKSDPHIKLQLAERGVSIGVCANRYLAMKEDGRLLASKC 373
QY 152 VTDECFEERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
|||||
Db 374 VTDECFEERLESNNYNTYRSRKYTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 432

RESULT 13

US-07-959-369-6

Sequence 6, Application US/07959369

Patent No. 5302701

GENERAL INFORMATION:

APPLICANT: Hidetaka HASHI et al.

TITLE OF INVENTION: No. 5302701el Functional Polypeptide

NUMBER OF SEQUENCES: 23

CORRESPONDENCE ADDRESSES:

ADDRESSEE: Wenderoth, Lind & Ponack

STREET: 805 Fifteenth Street, N.W., #700

CITY: Washington

STATE: D.C.

COUNTRY: U.S.A.

ZIP: 20005

COMPUTER READABLE FORM:

MEDIUM TYPE: Diskette, 5.25 inch, 500 kb

COMPUTER: IBM Compatible

OPERATING SYSTEM: MS-DOS

SOFTWARE: Wordperfect 5.1

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/959,369

FILING DATE: 19921013

CLASSIFICATION: 530

PRIOR APPLICATION DATA:

APPLICATION NUMBER:

FILING DATE:

ATTORNEY/AGENT INFORMATION:

NAME: Warren M. Cheek, Jr.

REGISTRATION NUMBER: 33,367

REFERENCE/DOCKET NUMBER:

TELECOMMUNICATION INFORMATION:

TELEPHONE: 202-371-8850

TELEFAX:

TELEX:

INFORMATION FOR SEQ ID NO: 6:

SEQUENCE CHARACTERISTICS:

LENGTH: 155 amino acids

TYPE: AMINO ACID

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: polypeptide

HYPOTHETICAL:

ANTI-SENSE:

FRAGMENT TYPE:

ORIGINAL SOURCE:

ORGANISM:

STRAIN:

INDIVIDUAL ISOLATE:

DEVELOPMENTAL STAGE:

HAPLOTYPE:

TISSUE TYPE:

CELL TYPE:

CELL LINE:

ORGANELLE:

IMMEDIATE SOURCE:

LIBRARY:

CLONE:

POSITION IN GENOME:

CHROMOSOME/SEGMENT:

MAP POSITION:

UNITS:

FEATURE:

NAME/KEY:

LOCATION:

IDENTIFICATION METHOD:

OTHER INFORMATION:

PUBLICATION INFORMATION:

AUTHORS:

TITLE:

JOURNAL:

VOLUME:

ISSUE:

PAGES:

DATE:

DOCUMENT NUMBER:

FILING DATE:

PUBLICATION DATE:

RELEVANT RESIDUES IN SEQ ID NO:

US-07-959-369-6

Query Match 73.9%; Score 826; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 6.3e-67;
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 56 MAAGSITTLPALPEDGSGAPPFGHFKDPKRLCKNGFFELRIHPDGRVDGVRKSDPHI 115
|||||
Db 1 MAAGSITTLPALPEDGSGAPPFGHFKDPKRLCKNGFFELRIHPDGRVDGVRKSDPHI 60
QY 116 KIQQAERGVSIGVCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYRSRKY 175
|||||
Db 61 KIQQAERGVSIGVCANRYLAMKEDGRLLASKCYTDECFEERLESNNYNTYRSRKY 120
QY 176 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
|||||
Db 121 TSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 14

US-07-842-177A-1

Sequence 1, Application US/07842177A

Patent No. 5348863

GENERAL INFORMATION:

APPLICANT: MONSAN, PIERRE

APPLICANT: PAUL, FRANCOIS

APPLICANT: BETBEDER, DIDIER

APPLICANT: SARMIENOS, PAOLO

TITLE OF INVENTION: PROCESS FOR THE ENZYMATIC PREPARATION OF

TITLE OF INVENTION: BASIC FIBROBLAST GROWTH FACTOR

NUMBER OF SEQUENCES: 6

CORRESPONDENCE ADDRESSES:

ADDRESSEE: OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT,

ADDRESS: P.C.

STREET: 1755 Jefferson Davis Highway, Suite 400

CITY: Arlington

STATE: Virginia

COUNTRY: U.S.A.

ZIP: 22202

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk

COMPUTER: IBM PC compatible

OPERATING SYSTEM: PC-DOS/MS-DOS

SOFTWARE: Patentin Release #1.0, Version #1.25

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/842,177A

FILING DATE: 19920402

CLASSIFICATION: 435

PRIOR APPLICATION DATA:
APPLICATION NUMBER: GB 9017008.5
FILING DATE: 02-AUG-1990
ATTORNEY/AGENT INFORMATION:
NAME: Oblon, No. 534863man F.
REGISTRATION NUMBER: 24,618
REFERENCE/DOCKET NUMBER: 769-263-0 PCT
TELECOMMUNICATION INFORMATION:
TELEPHONE: (703) 521-4500
TELEFAX: (703) 486-2347
TELEX: 248855 OPAT UR
INFORMATION FOR SEQ ID NO: 1:
SEQUENCE CHARACTERISTICS:
LENGTH: 155 amino acids
TYPE: AMINO ACID
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-07-842-177A-1

Query Match 73.9%; Score 826; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 6.3e-67;
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 56 MAAGSITLPLPEDGSGAAPPFGHFKDPKRLCKNGGFFLRHPDGRVGVREKSDPHI 115
DB 1 MAAGSITLPLPEDGSGAAPPFGHFKDPKRLCKNGGFFLRHPDGRVGVREKSDPHI 60
OY 116 KIQQAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRY 175
DB 61 KIQQAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRY 120
OY 176 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

RESULT 15

US-08-439-725A-10
Sequence 10, Application US/08439725A
Patent No. 5693775

GENERAL INFORMATION:

APPLICANT: Nathans, Jeremy
APPLICANT: Smallwood, Philip M.
TITLE OF INVENTION: FIBROBLAST GROWTH FACTOR HOMOLOGOUS
TITLE OF INVENTION: FACTOR-1 (FHF-1) AND METHODS OF USE
NUMBER OF SEQUENCES: 15
CORRESPONDENCE ADDRESS:
ADDRESSEE: Fish & Richardson P.C.
STREET: 4225 Executive Square, Suite 1400
CITY: La Jolla
STATE: CA
COUNTRY: USA
ZIP: 92037

COMPUTER READABLE FORM:

MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent Release #1.0, Version #1.30
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/439,725A
FILING DATE: 12-MAY-1995
CLASSIFICATION: 424

ATTORNEY/AGENT INFORMATION:

NAME: Halle, Lisa A.
REGISTRATION NUMBER: 38,347
REFERENCE/DOCKET NUMBER: 07265/047001
TELECOMMUNICATION INFORMATION:
TELEPHONE: 619/678-5070
TELEFAX: 617/678-5099
INFORMATION FOR SEQ ID NO: 10:

SEQUENCE CHARACTERISTICS:
LENGTH: 155 amino acids
TYPE: amino acid
STRANDEDNESS: not relevant
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-439-725A-10

Query Match 73.9%; Score 826; DB 1; Length 155;
Best Local Similarity 100.0%; Pred. No. 6.3e-67;
Matches 155; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 56 MAAGSITLPLPEDGSGAAPPFGHFKDPKRLCKNGGFFLRHPDGRVGVREKSDPHI 115
DB 1 MAAGSITLPLPEDGSGAAPPFGHFKDPKRLCKNGGFFLRHPDGRVGVREKSDPHI 60
OY 116 KIQQAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRY 175
DB 61 KIQQAEEERGVSISIKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSRY 120
OY 176 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
DB 121 TSMYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 155

Search completed: June 2, 2002, 18:01:37
Job time: 455 sec

Sun Jun 2 18:28:47 2002

us-09-642-277a-1.ral

GenCore version 4.5
Copyright (c) 1993 - 2000 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: June 2, 2002, 17:54:02 ; Search time 73.59 Seconds

(without alignments)
316.966 Million cell updates/sec

Title: US-09-642-277A-1

Perfect score: 1118

Sequence: 1 MGDRGRGRLPGRLGGRG.....GSKTGPQKAILFLPMsAKS 210

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 747574 seqs, 111073796 residues

Total number of hits satisfying chosen parameters: 747574

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

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2:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1981.DAT:*
3:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1982.DAT:*
4:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1983.DAT:*
5:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1984.DAT:*
6:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1985.DAT:*
7:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1986.DAT:*
8:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1987.DAT:*
9:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1988.DAT:*
10:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1989.DAT:*
11:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA1990.DAT:*
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22:	/SIDSI/gcgdata/hold-geneseq/geneseqp-emb1/AA2001.DAT:*

Pred. NO. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB	ID	Description
1	1118	100.0	210	22	AAB60695	Human basic fibrob
2	1118	100.0	211	11	AA07076	Extended recombin
3	1115	99.7	210	11	AA06685	Recombinant basic
4	1115	99.7	210	22	AAB50299	Human fibroblast g
5	1115	99.7	210	22	AAB50706	Human fibroblast g
6	837	74.9	157	8	AA071085	Sequence of human
7	837	74.9	158	22	AA08594	Human basic fibrob
8	837	74.9	158	22	AA078316	Human basic fibrob
9	837	74.9	158	22	AA04006	human fibroblast g
10	835	74.7	235	16	AA077286	Murine syndecan-1/
11	832	74.4	157	22	AA065081	human fibroblast g

12	832	74.4	157	22	AA04013	human fibroblast g
13	832	74.4	158	22	AA08601	Human basic fibrob
14	832	74.4	158	22	AA08605	Human basic fibrob
15	832	74.4	158	22	AA078320	Human basic fibrob
16	832	74.4	158	22	AA078328	Human basic fibrob
17	831	74.3	157	22	AA04008	human fibroblast g
18	831	74.3	158	18	AAW31664	Leaderless protein
19	831	74.3	158	22	AA08596	Human basic fibrob
20	831	74.3	158	22	AA078318	Human basic fibrob
21	830.5	74.3	432	14	AA040160	Human FN/bFGF fusi
22	830.5	74.3	432	18	AAW33339	Human fibroblast g
23	830.5	74.3	432	19	AAV05457	human fibroblast g
24	830	74.2	157	22	AAU04009	human fibroblast g
25	830	74.2	158	22	AAU08597	Human basic fibrob
26	830	74.2	158	22	AA078326	Human basic fibrob
27	829	74.2	157	22	AAU04010	Human basic fibrob
28	829	74.2	158	22	AA08598	Human basic fibrob
29	829	74.2	157	22	AA08598	Human basic fibrob
30	828	74.1	157	22	AA065080	Human basic fibrob
31	828	74.1	158	22	AAU08604	Human basic fibrob
32	828	74.1	158	22	AA078327	Human basic fibrob
33	827.5	74.0	432	14	AA040162	Human FN/bFGF fusi
34	826	73.9	155	8	AA070301	Sequence of human
35	826	73.9	155	10	AA094038	Human basic fibrob
36	826	73.9	155	11	AA05314	Human basic fibrob
37	826	73.9	155	13	AA022232	bFGF truncated at
38	826	73.9	155	14	AA040159	Human bFGF peptide
39	826	73.9	155	16	AA080777	Fibroblast growth
40	826	73.9	155	16	AA070204	Human bFGF. Homo
41	826	73.9	155	16	AA070823	FGF-2. Homo sapie
42	826	73.9	155	18	AAW33338	Human fibronectin
43	826	73.9	155	18	AAW19535	Biologically activ
44	826	73.9	155	19	AAV05456	Fibronectin recept
45	826	73.9	155	19	AAW75712	Fibroblast growth

ALIGNMENTS

RESULT 1
AAB60695 standard; protein; 210 AA.

AC AAB60695;
DT 22-MAY-2001 (first entry)

DE Human basic fibroblast growth factor (bFGF) 22.5 kd form, SEQ ID NO:1.

Human bFGF; basic fibroblast growth factor; 22.5 kd form;
central nervous system; CNS damage; brain damage; neural stimulant;
stem cell; conjoint administration; therapy; recovery;
ischaemia; hypoxia; trauma; neurodegenerative disorder;
infectious disease; cancer; autoimmune disease; metabolic disorder;
stroke; encephalomyelitis; Alzheimer's disease; Huntington's disease;
Parkinson's disease; Creutzfeldt-Jakob disease; multiple sclerosis;
amyotrophic lateral sclerosis.

OS Homo sapiens.

XX WO200112236-A2.

XX 22-FEB-2001.

XX 18-AUG-2000; 2000WO-US22843.

XX 18-AUG-1999; 99US-0149561.

XX (GEHO) GEN HOSPITAL CORP.

XX Finklestein SP, Snyder EV;

XX MPI; 2001-211142/21.

XX Treating central nervous system damage and brain damage resulting from
PT stroke, involves administering cells or stem cells and a neural
PT stimulant

XX Claim 14; Fig 4; 56pp; English.

CC The invention relates to a method of treating an individual with
CC central nervous system (CNS) damage, particularly brain damage resulting
CC from stroke. The method involves the administration a neural stimulant
CC such as a polypeptide growth factor, and stem cells (e.g., neural stem
CC cells, haematopoietic stem cells, teratocarcinoma-derived cells or
CC embryonic stem cells) capable of giving rise to brain cells such as
CC neurons, oligodendroglia, astroglia or microglia. The conjoint
CC administration of the stem cells and the neural stimulant promotes
CC greater recovery from CNS damage than either treatment alone, and
CC provides a greater degree of recovery than is currently available with
CC other known treatment methods. From a study of the effectiveness of the
CC conjoint administration of foetal mouse neural stem cells with or
CC without basic fibroblast growth factor (bFGF) in a rat model of stroke,
CC it was found that the treatment's recovery-promoting effects are
CC probably produced through mechanisms other than the prevention of cell
CC death. The method is useful for treating injury to the brain and spinal
CC cord due to ischaemia, hypoxia, trauma, neurodegenerative disorders
CC infectious diseases, cancer, autoimmune disease and metabolic disorders.
CC Examples of such disorders include stroke, hypotension, arrested
CC breathing, cardiac arrest, brain tumours, brain injury,
CC encephalomyelitis, Alzheimer's disease, Huntington's disease, Parkinson's
CC disease, Creutzfeldt-Jakob disease, multiple sclerosis, and amyotrophic
CC lateral sclerosis. The present sequence represents a 22.5 kd (210
CC residue) form of human bFGF which is specifically claimed for use in the
CC method of the invention.

XX Sequence 210 AA;

Query Match 100.0%; Score 1118; DB 22; Length 210;
Best Local Similarity 100.0%; Pred. No. 4.4e-91;
Matches 210; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDGRGRALPGRLGGRGRAPERVGGRGRTAPRAAPAARGSRPGPAGTMAAGS 60
Db ||||||||||||||||||||||||||||||||||||||||||||||||||||
1 mgdrggralpgrlggrgrapervvggrgrgtaapraapargsrpgpagtmaags 60
QY 61 ITTLPALPEDGSSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHIKLO 120
Db ||||||||||||||||||||||||||||||||||||||||||||||||||||
61 ittlpalpedgssgafppghfkdpkrllycknggfflrhpdgrvdgvreksdphiklq 120
QY 121 AEERGVSISIKVCANRYLAMKEDGRLLASKCVTDECFERLESNNYNTYRSRKYTSWY 180
Db ||||||||||||||||||||||||||||||||||||||||||||||||||||
121 aeergvsvikgvcanylamkedgrllaskcvtdcefferlesnnyntyrskytswy 180
QY 181 ALKRTGYKLGSKTGPQKAILFLPMSAKS 210
Db ||||||||||||||||||||||||||||||||||||||||||||||||||||
181 alktgykylgsktgpqkailflpmsaks 210

RESULT 2

AAR07076
ID AAR07076 standard; protein; 211 AA.

XX AAR07076;

XX 11-JAN-1991 (first entry)

XX Extended recombinant basic fibroblast growth factor.

XX Basic fibroblast growth factor; tissue regeneration; infarction.

XX FR2642086-A.

XX 27-JUL-1990.

XX

PF 26-JAN-1989; 89FR-0000973.

XX 26-JAN-1989; 89FR-0000973.

XX (SNFI) SANOFI SA.

PI Caput D, Ferrara P, Kaghad M;

DR WPI; 1990-277408/37.

DR N-PSDB; AAQ05884.

PT New recombinant gene encoding basic fibroblast growth factor - in
PT new high mol. wt. form, useful e.g. for stimulating tissue
PT regenerating or treating infarction

XX Disclosure; fig 8; 43pp; French.

CC This basic fibroblast growth factor (bFGF), encoded by clone
CC 409.2, stimulates growth of mesodermal and neuroectodermal cells.
CC It is thus potentially useful e.g. for regenerating damaged tissues,
CC and for treating myocardial infarctions, Parkinsons disease and
CC Alzheimers disease. It can be produced on a large scale using rec-
CC ombinant DNA methods without risk of contamination. See also AAQ05884.

XX Sequence 211 AA;

Query Match 100.0%; Score 1118; DB 11; Length 211;
Best Local Similarity 100.0%; Pred. No. 4.5e-91;
Matches 210; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDGRGRALPGRLGGRGRAPERVGGRGRTAPRAAPAARGSRPGPAGTMAAGS 60
Db ||||||||||||||||||||||||||||||||||||||||||||||||||||
1 mgdrggralpgrlggrgrapervvggrgrgtaapraapargsrpgpagtmaags 60
QY 61 ITTLPALPEDGSSGAPPGHFKDPKRLYCKNGGFFLRHPDGRVDGVREKSDPHIKLO 120
Db ||||||||||||||||||||||||||||||||||||||||||||||||||||
61 ittlpalpedgssgafppghfkdpkrllycknggfflrhpdgrvdgvreksdphiklq 120
QY 121 AEERGVSISIKVCANRYLAMKEDGRLLASKCVTDECFERLESNNYNTYRSRKYTSWY 180
Db ||||||||||||||||||||||||||||||||||||||||||||||||||||
121 aeergvsvikgvcanylamkedgrllaskcvtdcefferlesnnyntyrskytswy 180
QY 181 ALKRTGYKLGSKTGPQKAILFLPMSAKS 210
Db ||||||||||||||||||||||||||||||||||||||||||||||||||||
181 alktgykylgsktgpqkailflpmsaks 210

RESULT 3

AAR06685
ID AAR06685 standard; protein; 210 AA.

XX AAR06685;

XX 11-JAN-1991 (first entry)

XX Recombinant basic fibroblast growth factor.

XX Basic fibroblast growth factor; tissue regeneration; infarction.

XX FR2642086-A.

XX 27-JUL-1990.

XX 26-JAN-1989; 89FR-0000973.

XX 26-JAN-1989; 89FR-0000973.

XX (SNFI) SANOFI SA.

XX Caput D, Ferrara P, Kaghad M;

XX WPI; 1990-277408/37.

DR N-PSDB; AA005883.
XX
PT New recombinant gene encoding basic fibroblast growth factor - in
PT new high mol. wt. form, useful e.g. for stimulating tissue
PT regenerating or treating infarction
XX
PS Disclosure; fig 3; 43pp; French.
XX
CC This basic fibroblast growth factor (bFGF), encoded by clone
CC pUC-SK1, stimulates growth of mesodermal and neuroectodermal cells.
CC It is thus potentially useful e.g. for regenerating damaged tissues,
CC and for treating myocardial infarctions, Parkinsons disease and
CC Alzheimers disease. It can be produced on a large scale using rec-
CC ombinant DNA methods without risk of contamination. There are a
CC further 3 potential initiation codons in the corresp. DNA sequence,
CC allowing expression of larger forms of the protein. See also AA005884.
XX
SQ Sequence 210 AA;

Query Match 99.7%; Score 1115; DB 11; Length 210;
Best Local Similarity 99.5%; Pred. No. 8.2e-91;
Matches 209; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDGRGRALPGRLGGRGRGRAPERVGGRGRGTAPRAAPAAAGSRPGPAGTMAAGS 60
Db 1 lgrgrgralpggrlgrgrgrapervgrgrgrgtapraapaaarsrpgpagtmaags 60
QY 61 ITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVREKSDPHIKLOQ 120
Db 61 ittlpalpedgsgafppghfkdpkrllycknggfelrhpdgrvdgvreksdphiklqlq 120
QY 121 AEERGVSISKVCANRYLAMKEDGRLLASKCVTDECFPERLESNNYNTYRSRKYTSWYV 180
Db 121 aeergvsvikvcanylamkedgrllaskcvtdcefferlesnnyntyrskytswyv 180
QY 181 ALKRTGQYKLGSKTGPCKAILFLPMSAKS 210
Db 181 alkrtygylgsktgpqkailflpmsaks 210

RESULT 4
AAB50299
ID AAB50299 standard; Protein; 210 AA.
XX
AC AAB50299;
XX
DT 20-MAR-2001 (first entry)
XX
DE Human fibroblast growth factor 20 SEQ ID NO: 8.
XX
KW Human; fibroblast growth factor 11; FGF-11; cancer; autoimmune disorder;
KW hyperproliferative disorder; cardiovascular disorder; angiogenesis;
KW wound healing; neurological disease; infection.
XX
OS Homo sapiens.
XX
PN WO200071715-A1.
XX
PD 30-NOV-2000.
XX
PF 16-MAY-2000; 2000WO-US13331.
XX
PR 21-MAY-1999; 99US-0135524.
XX
PA (HUMA-) HUMAN GENOME SCI INC.
XX
PI Rosen CA, Alderson R, Melder R, Duan RD, Hu J;
XX
DR WPI; 2001-016408/02.
XX
PT Polynucleotide encoding human fibroblast growth factor 11, useful in
PT the diagnosis, treatment and prevention of cancer, immune disorders,

PT cardiovascular disorders and neurological diseases -
XX
PS Disclosure; page 241-242; 250pp; English.
XX
CC The present invention provides the protein and coding sequences for human
CC fibroblast growth factor 11 (FGF-11). These sequences can be used in the
CC diagnosis and treatment of infections, cancer, autoimmune disorders,
CC hyperproliferative disorders, cardiovascular disorders and neurological
CC diseases, to prevent angiogenesis and to aid wound healing.
XX
SQ Sequence 210 AA;

Query Match 99.7%; Score 1115; DB 22; Length 210;
Best Local Similarity 99.5%; Pred. No. 8.2e-91;
Matches 209; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 MGDGRGRALPGRLGGRGRGRAPERVGGRGRGTAPRAAPAAAGSRPGPAGTMAAGS 60
Db 1 lgrgrgralpggrlgrgrgrapervgrgrgrgtapraapaaarsrpgpagtmaags 60
QY 61 ITTLPALPEDGSGAFPPGHFKDPKRLYCKNGGFELRIHPDGRVDGVREKSDPHIKLOQ 120
Db 61 ittlpalpedgsgafppghfkdpkrllycknggfelrhpdgrvdgvreksdphiklqlq 120
QY 121 AEERGVSISKVCANRYLAMKEDGRLLASKCVTDECFPERLESNNYNTYRSRKYTSWYV 180
Db 121 aeergvsvikvcanylamkedgrllaskcvtdcefferlesnnyntyrskytswyv 180
QY 181 ALKRTGQYKLGSKTGPCKAILFLPMSAKS 210
Db 181 alkrtygylgsktgpqkailflpmsaks 210

RESULT 5
AAB50706
ID AAB50706 standard; Protein; 210 AA.
XX
AC AAB50706;
XX
DT 20-MAR-2001 (first entry)
XX
DE Human fibroblast growth factor 2 SEQ ID NO: 4.
XX
KW Human; fibroblast growth factor 10; FGF-10; cancer; autoimmune disorder;
KW hyperproliferative disorder; cardiovascular disorder; angiogenesis;
KW wound healing; neurological disease; infection.
XX
OS Homo sapiens.
XX
PN WO200071152-A1.
XX
PD 30-NOV-2000.
XX
PF 18-MAY-2000; 2000WO-US13573.
XX
PR 21-MAY-1999; 99US-0135523.
XX
PA (HUMA-) HUMAN GENOME SCI INC.
XX
PI Rosen CA, Alderson R, Melder R, Duan DR, Hu J, Gocayne JD;
XX
DR WPI; 2001-016351/02.
XX
PT Polynucleotide encoding human fibroblast growth factor 10, useful in
PT the diagnosis, treatment and prevention of cancer, immune disorders,
PT cardiovascular disorders and neurological diseases -
XX
PS Disclosure; page 263; 275pp; English.
XX
CC The present invention provides the protein and coding sequences for human
CC fibroblast growth factor 10 (FGF-10). These sequences can be used in the
CC diagnosis and treatment of infections, cancer, autoimmune disorders,

Query Match 74.9%; Score 837; DB 22; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.2e-66;
Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAEPPEGHEKDPKRLCYCKNGGFLLRIHPDGRVDGVREKSDP 113
|||||
Db 2 gtmagsitllpalpedgsgafppghfkdpkrlcycknggfflrihpdgrvdgvreksdp 61
OY 114 HIKLQLOAERGVSVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSR 173
|||||
Db 62 hklqlgaeergvsvikgvcanrylamkedgrllaskcvtdecffierlesnnyntyrst 121
OY 174 KYTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
|||||
Db 122 kytswyvalkrtgqykgksgtgpqkailflpmsaks 158

RESULT 8
AAG78316
ID AAG78316 standard; protein; 158 AA.
XX
AC AAG78316;
XX
DT 04-DEC-2001 (first entry)
XX
DE Human basic Fibroblast Growth Factor.
XX
KW Human basic fibroblast growth factor; bFGF; wound healing; ischaemia;
KW vascular disease; gastric ulcer; duodenal ulcer; stroke; gene therapy;
KW cancer; Parkinson's; Alzheimer's; cardiac disorder; cytostatic;
KW vulnary; cerebroprotective; antiulcer; vasotropic; neuroprotective;
KW cell division.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Cleavage-site 1..2
FT /note- "The initiating methionine is processed by E coli,
FT purified bFGF of the invention therefore lack this amino
FT acid"
FT 2..158
FT /label- bFGF
FT /note- "Basic Fibroblast Growth Factor"

XX US6274712-B1.
PN 14-AUG-2001.
PD
XX
PF 23-DEC-1998; 98US-0220077.
XX
PR 23-DEC-1997; 97US-068667P.
XX
PA (THRE-) 3-DIMENSIONAL PHARM INC.
XX
PI Springer BA, Pantoliano MW, Sharp CM;
XX WPI; 2001-595418/67.
DR N-PSDB; AAI64151.
DR
XX
PT Novel mutant human basic fibroblast growth factor useful for, e.g.,
PT stimulating wound healing, treating ischaemia, peripheral vascular
PT disease, gastric or duodenal ulcers, stroke and gene therapy.
XX
PS Example 1; Fig 1; 16pp; English.

CC This sequence relates to the amino acid sequence of human basic
CC fibroblast growth factor (bFGF). The specification describes the creation
CC of bFGF mutants or biologically active peptides based on the fully
CC defined amino acid sequence given. The proteins have cytostatic,
CC vulnary, cerebroprotective, antiulcer, vasotropic and neuroprotective
CC activities. The mutants may act as bFGF analogues and bFGF super

agonists. The mutants are useful for stimulating cell division, wound
CC healing, treating ischaemia, peripheral vascular disease, gastric or
CC duodenal ulcers, stroke, Parkinson's and Alzheimer's diseases, cardiac
CC disorders and neural injury. Additionally, they may be used in gene
CC therapy to treat inherited diseases, cancer and acquired disorders.
XX

Sequence 158 AA;

Query Match 74.9%; Score 837; DB 22; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.2e-66;
Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAEPPEGHEKDPKRLCYCKNGGFLLRIHPDGRVDGVREKSDP 113
|||||
Db 2 gtmagsitllpalpedgsgafppghfkdpkrlcycknggfflrihpdgrvdgvreksdp 61
OY 114 HIKLQLOAERGVSVSIKVCANRYLAMKEDGRLLASKCVTDECFEERLESNNYNTYRSR 173
|||||
Db 62 hklqlgaeergvsvikgvcanrylamkedgrllaskcvtdecffierlesnnyntyrst 121
OY 174 KYTSWYVALKRTGQYKLGSKTGPQKAILFLPMSAKS 210
|||||
Db 122 kytswyvalkrtgqykgksgtgpqkailflpmsaks 158

RESULT 9
AAU04006
ID AAU04006 standard; protein; 158 AA.
XX
AC AAU04006;
XX
DT 27-SEP-2001 (first entry)
XX
DE human fibroblast growth factor.
XX
KW Human; basic fibroblast growth factor; FGF; site directed mutagenesis;
KW wound healing; ischaemia; peripheral vascular disease; neural injury;
KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke;
KW gene therapy.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT Misc-difference 1
FT /note- "This amino acid is absent from the form of
FT the protein expressed in E. coli and the muten residues
FT are numbered from the Gly at position 2"
XX
PN WO200146416-A1.
PD
XX
PD 28-JUN-2001.
XX
PF 22-DEC-1999; 99WO-US30534.
XX
PR 22-DEC-1999; 99WO-US30534.
XX
PA (THRE-) 3-DIMENSIONAL PHARM INC.
XX
PI Springer BA, Pantoliano MW, Sharp CM;
XX WPI; 2001-418062/44.
DR N-PSDB; AAS07325.
DR
XX
PT Novel muten of human fibroblast growth factor comprising substitution
PT of a neutral and/or hydrophobic amino acid for amino acid residue
PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
PT wounds, ulcers
XX
PS Example 1; Fig 1; 47pp; English.

CC The sequence is human basic fibroblast growth factor, hFGF. The cDNA
CC encoding hFGF has been engineered to allow site directed mutagenesis of

CC hFGF in order to produce muteins of hFGF with substitutions of a neutral
CC and/or hydrophobic amino acid for one or more of the following amino acid
CC residues (numbered from the Gly at position 2 since the Met at position 1
CC is removed when the proteins are expressed in E. coli): glutamate 89, or
CC aspartate 101 or leucine 137. hFGF muteins are useful for healing wounds,
CC stimulating cell division in vivo or in vitro, treating ischaemia,
CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
CC muteins are also useful for treating the above mentioned conditions by
CC gene therapy techniques.

XX SQ Sequence 158 AA:

Query Match 74.9%; Score 837; DB 22; Length 158;
Best Local Similarity 100.0%; Pred. No. 2.2e-66;
Matches 157; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 54 GTMAAGSITLTPALPEDGSGAFPPGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDP 113
|||
Db 2 gumaagsltltpalpedgsgafppghfkdpkrlcycknggfflrhpdgrvdgvreksdp 61
OY 114 HIKIQDAEERGVSISKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSR 173
|||
Db 62 hikiqdaeeergvsiskvcanylamkedgrllaskcvtdcefferlesnnyntyr 121
OY 174 KYTSWYVALKRTGQYKLGSKTGPCKAILFLPMSAKS 210
|||
Db 122 kytswyvalkrtgqyklgsktgpqkailflpmsaks 158

RESULT 10

AAR77286
ID AAR77286 standard; Protein; 235 AA.

XX AC -AAR77286;

DT 12-SEP-1995 (first entry)

XX DE Murine syndecan-1/human bFGF chimaeric protein.

KW Cell surface; proteoglycan; syndecan; mouse; mammary; epithelial cell;
KW ectodomain; NMUMG; glycosylation; heparan sulphate; chondroitin sulphate;
KW chimaera; chimaeric molecule; effector molecule; receptor; drug;
KW antibody; diagnostic agent; PCR; primer; amplification.

XX OS Synthetic.

XX FH Key Location/Qualifiers

FT Peptide 1..81

FT Peptide /note= "murine syndecan residues"

FT Peptide 82..235

FT Peptide /note= "N-terminus bFGF coding region"

XX PN W09500633-A.

XX PD 05-JAN-1995.

XX PF 17-JUN-1994; 94WO-US06920.

XX PR 17-JUN-1993; 93US-0078683.

XX PA (CHIL-) CHILDRENS MEDICAL CENT.

XX PA (STRD) UNIV LELAND STANFORD JUNIOR.

XX PI Bernfield M, Kato M, Saunders S;

XX DR WPI; 1995-052071/07.

XX PT DNA and protein sequences for recombinant syndecan-derived
XX PT proteoglycans - comprising a core protein having glycosylation
XX PT sites for heparin sulphate glycosaminoglycan side chains.

PS Example 12; Page 69; 97pp; English.

XX The sequence of a chimaeric protein comprising residues 1-81 of the
CC mouse syndecan-1 (AA081748) linked to the residues comprising the
CC N-terminus of the human basis fibroblast growth factor (bFGF). The gene
CC encoding the chimaera was constructed by a sequential PCR process using
CC primers AA091321-4 to amplify portions of the desired fragments. This
CC sequence is an example of a chimaeric molecule containing the functional
CC domains, esp. the soluble extracellular or heparan binding site, of the
CC syndecan molecules (see AAR66797-812) linked to biological effector
CC molecules, cell surface receptors, drugs, antibodies, diagnostic agents
CC or components of microorganisms.

XX SQ Sequence 235 AA:

Query Match 74.7%; Score 835; DB 16; Length 235;
Best Local Similarity 81.0%; Pred. No. 5.2e-66;
Matches 166; Conservative 2; Mismatches 19; Indels 18; Gaps 3;

OY 24 PERVGGRG-----RGRGTAA-----PRAAPA-----RGSRPAGTMAAGSITLP 65
|||
Db 31 pedvggsgddsnfsgsgtgalpdlrsrqpstwkdwlltauptapepsaagstltlp 90
OY 66 ALPEDGSGAFPPGHFKDPKRLCYCKNGGFFLRHPDGRVDGVREKSDPHIKIQDAEERG 125
|||
Db 91 alpedgsgafppghfkdpkrlcycknggfflrhpdgrvdgvreksdp hikiqdaerg 150
OY 126 VVSIGVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSKRYTSWYVALKRT 185
|||
Db 151 vvsikgvcanrylamkedgrllaskcvtdcefferlesnnyntyrkyswyvalkrt 210
OY 186 GOYKLGSKTGPCKAILFLPMSAKS 210
|||
Db 211 gqyklgsktgpqkailflpmsaks 235

RESULT 11

AAG65081
ID AAG65081 standard; Protein; 157 AA.

XX AC AAG65081;

DT 27-SEP-2001 (first entry)

XX DE human fibroblast growth factor mutein L137Y.

KW Human; fibroblast growth factor; FGF; site directed mutagenesis;
KW wound healing; ischaemia; peripheral vascular disease; neural injury;
KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutein;
KW mutant; L137Y.

XX KW mutant; L137Y.

XX OS Homo sapiens.

XX OS Synthetic.

XX FH Key Location/Qualifiers

FT Misc-difference 137

FT Misc-difference /note= "Wild-type Leu substituted by Tyr"

XX PN W0200146416-A1.

XX PD 28-JUN-2001.

XX PF 22-DEC-1999; 99WO-US30534.

XX PR 22-DEC-1999; 99WO-US30534.

XX PA (THRE-) 3-DIMENSIONAL PHARM INC.

XX PI Springer BA, Pantoliano MW, Sharp CM;

XX DR WPI; 2001-418062/44.

PT Novel mutein of human fibroblast growth factor comprising substitution
 PT of a neutral and/or hydrophobic amino acid for amino acid residue
 PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
 PT wounds, ulcers

PS Claim 18; Page - ; 47pp; English.

XX The sequence is human fibroblast growth factor, hFGF, mutein L137Y. The
 CC mutein is produced from a cDNA encoding hFGF that has been engineered to
 CC allow site directed mutagenesis of hFGF in order to produce muteins of
 CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
 CC one or more of the following amino acid residues (numbered from the Gly
 CC at position 2 in the wild type hFGF since the Met at position 1
 CC is removed when the proteins are expressed in *E. coli*): glutamate 89, or
 CC aspartate 101 or leucine 137. hFGF muteins are useful for healing wounds,
 CC stimulating cell division in vivo or in vitro, treating ischaemia,
 CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
 CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
 CC muteins are also useful for treating the above mentioned conditions by
 CC gene therapy techniques.
 CC Note: The present sequence is not shown in the specification but is
 CC derived from the hFGF sequence shown in figure 1.

XX Sequence 157 AA;

Query Match 74.4%; Score 832; DB 22; Length 157;
 Best Local Similarity 99.4%; Pred. No. 6e-66;
 Matches 156; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAEPFGHFKDPKRLCYCKNGGFELRIHPDGRVDGVREKSDP 113
 Db 1 gumaagsittlpalpedgsgafppghfkdpkrlcycknggfllrhpddgrvdgvreksdp 60
 OY 114 HIKILOAEEERGVSIVKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSR 173
 Db 61 hikiqlgaeergvsvikvcanrylamkedgrllaskcvtdecffferlesnnyntyr 120
 OY 174 KYTSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 210
 Db 121 kytswyvalkrtgykyksgktgpgqkailflpmsaks 157

RESULT 12

AAU04013
 ID AAU04013 standard; Protein; 157 AA.

AC AAU04013;

DT 27-SEP-2001 (first entry)

DE human fibroblast growth factor mutein L137A.

KW Human; fibroblast growth factor; FGF; site directed mutagenesis;
 KW wound healing; ischaemia; peripheral vascular disease; neural injury;
 KW gastric ulcer; duodenal ulcer; heart disease; tumour; stroke; mutein;
 KW mutant; L137A.

OS Homo sapiens.
 OS Synthetic.

FT Key Location/Qualifiers
 FT Misc-difference 137

FT /note= "Wild-type Leu substituted by Ala"

PN WO200146416-A1.

PD 28-JUN-2001.

PF 22-DEC-1999; 99WO-US30534.

PR 22-DEC-1999; 99WO-US30534.

XX

PA (THRE-) 3-DIMENSIONAL PHARM INC.

PI Springer BA, Pantoliano MW, Sharp CM;

DR WPI; 2001-418062/44.

PT Novel mutein of human fibroblast growth factor comprising substitution
 PT of a neutral and/or hydrophobic amino acid for amino acid residue
 PT glutamate 89 or aspartate 101 or leucine 137, useful for treating
 PT wounds, ulcers

PS Claim 11; Page - ; 47pp; English.

XX The sequence is human fibroblast growth factor, hFGF, mutein L137A. The
 CC mutein is produced from a cDNA encoding hFGF that has been engineered to
 CC allow site directed mutagenesis of hFGF in order to produce muteins of
 CC hFGF with substitutions of a neutral and/or hydrophobic amino acid for
 CC one or more of the following amino acid residues (numbered from the Gly
 CC at position 2 in the wild type hFGF since the Met at position 1
 CC is removed when the proteins are expressed in *E. coli*): glutamate 89, or
 CC aspartate 101 or leucine 137. hFGF muteins are useful for healing wounds,
 CC stimulating cell division in vivo or in vitro, treating ischaemia,
 CC peripheral vascular disease, neural injury, gastric ulcer, duodenal
 CC ulcer, heart disease, tumours and stroke. Polynucleotides encoding the
 CC muteins are also useful for treating the above mentioned conditions by
 CC gene therapy techniques.
 CC Note: The present sequence is not shown in the specification but is
 CC derived from the hFGF sequence shown in figure 1.

SO Sequence 157 AA;

Query Match 74.4%; Score 832; DB 22; Length 157;
 Best Local Similarity 99.4%; Pred. No. 6e-66;
 Matches 156; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGSGAEPFGHFKDPKRLCYCKNGGFELRIHPDGRVDGVREKSDP 113
 Db 1 gumaagsittlpalpedgsgafppghfkdpkrlcycknggfllrhpddgrvdgvreksdp 60
 OY 114 HIKILOAEEERGVSIVKVCANRYLAMKEDGRLASKCVTDECFEERLESNNYNTYRSR 173
 Db 61 hikiqlgaeergvsvikvcanrylamkedgrllaskcvtdecffferlesnnyntyr 120
 OY 174 KYTSWYVALKRTGYKLGSKTGPQKAILFLPMSAKS 210
 Db 121 kytswyvalkrtgykyksgktgpgqkailflpmsaks 157

RESULT 13

AAU08601
 ID AAU08601 standard; Protein; 158 AA.

AC AAU08601;

DT 03-JAN-2002 (first entry)

DE Human basic fibroblast growth factor mutein L137A.

KW Human; basic fibroblast growth factor; bFGF; vulnerary; vasotrophic;
 KW antiulcer; cerebroprotective; neuroprotective; cardiart; wound healing;
 KW ischaemia; peripheral vascular disease; neural injury; gastric ulcer;
 KW duodenal ulcer; heart disease; mutant; mutein; L137A.

OS Homo sapiens.
 OS Synthetic.

FT Key Location/Qualifiers
 FT Misc-difference 138

FT /note= "Wild-type Leu substituted by Ala"

PN US2001020004-A1.

XX

PD 06-SEP-2001.
XX
XX 05-APR-2001; 2001US-0826210.
XX
XX 23-DEC-1997; 97US-0068667.
PR 23-DEC-1998; 98US-0220077.
XX
XX (THRE-) 3-DIMENSIONAL PHARM INC.
XX
XX Springer BA, Pantollano MW, Sharp CM;
XX
XX WPI; 2001-570186/64.
XX
XX New muteins or analogues of human basic fibroblast growth factor, useful
PT for healing a wound, or treating ischaemia, peripheral vascular disease,
PT neural injury, gastric ulcer, duodenal ulcer or heart disease
XX
XX Claim 11; Page - ; 15pp; English.
XX
XX The invention relates to a mutein of human basic fibroblast growth factor
CC (bFGF) or its biologically active peptide, comprising the substitution of
CC a neutral and/or hydrophobic amino acid. The mutein comprises the
CC substitution of a neutral and/or hydrophobic amino acid for one or more
CC Glutamate 89, Aspartate 101, or Leucine 137. The muteins have
CC superagonist properties. The human basic fibroblast growth factor mutein
CC is useful for healing a wound, or treating ischaemia, peripheral vascular
CC disease, neural injury, gastric ulcer, duodenal ulcer or heart disease
CC by stimulating cell division and can be administered by gene therapy.
CC The present sequence represents bFGF mutein L137A. The amino acid(s)
CC mutated refer to the numbering after the N-terminal methionine has been
CC processed off. The number in the feature table refers to the location in
CC the unprocessed protein.
CC Note: The present sequence does not appear in the specification but
CC is derived from the bFGF sequence appearing as AAU08594.
XX
XX Sequence 158 AA;
SQ

Query Match 74.4%; Score 832; DB 22; Length 158;
Best Local Similarity 99.4%; Pred. No. 6.1e-66;
Matches 156; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGGSGAFPFGHFKDPKRLCYCKNGGFLLRIHPDGRVDGVRKSDP 113
DB 2 gtaagsitltpalpedgsgaifpghfkdpkrlcycknggflrlhpdgrvdrvrekdp 61
OY 114 HIKLQLAEEERGVSIGVCANRYLAMKEDGRLLASKCVTDECFPERLESNNYNTYRSR 173
DB 62 hklqlgaeeergvsvikgvcanrylamkedgrllaskcvtdcefferlesnnyntyr 121
OY 174 KYTSWYVALKRTGQYKLGSKTGPGRKATFLPMSAKS 210
DB 122 kytswyvalkrtgqykagsktgpqkallflpmsaks 158

RESULT 14
AAU08605
ID AAU08605 standard; Protein; 158 AA.
XX
AC AAU08605;
XX
DT 03-JAN-2002 (first entry)
XX
XX Human basic fibroblast growth factor mutein L137Y.
XX
XX Human; basic fibroblast growth factor; bFGF; vulnerrary; vasotropic;
KW antiulcer; cerebroprotective; neuroprotective; cardiant; wound healing;
KW ischaemia; peripheral vascular disease; neural injury; gastric ulcer;
KW duodenal ulcer; heart disease; mutant; mutein; L137Y.
XX
OS Homo sapiens.
OS Synthetic.
XX

EH Key Location/Qualifiers
FT Misc-difference 138 /note- "Wild-type Leu substituted by Tyr"
XX
XX US2001020004-A1.
XX
XX 06-SEP-2001.
XX
XX 05-APR-2001; 2001US-0826210.
XX
XX 23-DEC-1997; 97US-0068667.
PR 23-DEC-1998; 98US-0220077.
XX
XX (THRE-) 3-DIMENSIONAL PHARM INC.
XX
XX Springer BA, Pantollano MW, Sharp CM;
XX
XX WPI; 2001-570186/64.
XX
XX New muteins or analogues of human basic fibroblast growth factor, useful
PT for healing a wound, or treating ischaemia, peripheral vascular disease,
PT neural injury, gastric ulcer, duodenal ulcer or heart disease
XX
XX Claim 18; Page - ; 15pp; English.
XX
XX The invention relates to a mutein of human basic fibroblast growth factor
CC (bFGF) or its biologically active peptide, comprising the substitution of
CC a neutral and/or hydrophobic amino acid. The mutein comprises the
CC substitution of a neutral and/or hydrophobic amino acid for one or more
CC Glutamate 89, Aspartate 101, or Leucine 137. The muteins have
CC superagonist properties. The human basic fibroblast growth factor mutein
CC is useful for healing a wound, or treating ischaemia, peripheral vascular
CC disease, neural injury, gastric ulcer, duodenal ulcer or heart disease
CC by stimulating cell division and can be administered by gene therapy.
CC The present sequence represents bFGF mutein L137Y. The amino acid(s)
CC mutated refer to the numbering after the N-terminal methionine has been
CC processed off. The number in the feature table refers to the location in
CC the unprocessed protein.
CC Note: The present sequence does not appear in the specification but
CC is derived from the bFGF sequence appearing as AAU08594.
XX
XX Sequence 158 AA;
SQ

Query Match 74.4%; Score 832; DB 22; Length 158;
Best Local Similarity 99.4%; Pred. No. 6.1e-66;
Matches 156; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 54 GTMAAGSITTLPALPEDGGSGAFPFGHFKDPKRLCYCKNGGFLLRIHPDGRVDGVRKSDP 113
DB 2 gtaagsitltpalpedgsgaifpghfkdpkrlcycknggflrlhpdgrvdrvrekdp 61
OY 114 HIKLQLAEEERGVSIGVCANRYLAMKEDGRLLASKCVTDECFPERLESNNYNTYRSR 173
DB 62 hklqlgaeeergvsvikgvcanrylamkedgrllaskcvtdcefferlesnnyntyr 121
OY 174 KYTSWYVALKRTGQYKLGSKTGPGRKATFLPMSAKS 210
DB 122 kytswyvalkrtgqykagsktgpqkallflpmsaks 158

RESULT 15
AAG78320
ID AAG78320 standard; Protein; 158 AA.
XX
AC AAG78320;
XX
DT 04-DEC-2001 (first entry)
XX
XX Human basic fibroblast Growth Factor mutant (L137A).
XX
XX Human basic fibroblast growth factor; bFGF; wound healing; ischaemia;
KW vascular disease; gastric ulcer; duodenal ulcer; stroke; gene therapy;
KW

KW cancer; Parkinson's; Alzheimer's; cardiac disorder; cytostatic;
KW vulnary; cerebroprotective; antiulcer; vasotropic; neuroprotective;
KW cell division; muten; mutant.

OS Homo sapiens.
OS Synthetic.

XX Key
XX Cleavage-site
XX Location/Qualifiers

FT 1.2
FT /note- "The initiating methionine is processed by E coli,
FT purified bFGF of the invention therefore lack this amino
FT acid"
FT Misc-difference 138
FT /note- "Wild type Leu replaced by Ala"

XX US6274712-B1.

XX 14-AUG-2001.

XX 23-DEC-1998; 98US-0220077.

XX 23-DEC-1997; 97US-068667P.

XX (THRE-) 3-DIMENSIONAL PHARM INC.

XX Springer BA, Pantollano MW, Sharp CM;

XX WPI; 2001-595418/67.

XX Novel mutant human basic fibroblast growth factor useful for, e.g.,
XX stimulating wound healing, treating ischaemia, peripheral vascular
XX disease, gastric or duodenal ulcers, stroke and gene therapy.

XX Claim 4; page -: 16pp: English.

XX This sequence relates to a mutant protein created using human basic
XX fibroblast growth factor (bFGF) (AAG78316) with Leu138 substituted with
XX an alanine. The specification describes the creation of bFGF mutens or
XX biologically active peptides based on the fully defined amino acid
XX sequence given. The proteins have cytostatic, vulnary,
XX cerebroprotective, antiulcer, vasotropic and neuroprotective activities.
XX The mutens may act as bFGF analogues and bFGF super agonists. The
XX mutens are useful for stimulating cell division, wound healing,
XX treating ischaemia, peripheral vascular disease, gastric or duodenal
XX ulcers, stroke, Parkinson's and Alzheimer's diseases, cardiac disorders
XX and neural injury. Additionally, they may be used in gene therapy to
XX treat inherited diseases, cancer and acquired disorders.
XX NOTE: The present sequence is not given in the specification but has
XX been created using the information given in Claim 4.

XX Sequence 158 AA;

Query Match 74.4%; Score 832; DB 22; Length 158;

Best Local Similarity 99.4%; Pred. No. 6.1e-66;

Matches 156; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

OY 54 GTMAAGSITLTPALPEDGSGAAPPFGHDPKRLCYCKNGGFFLRHPDGRVDGVRKSDP 113

Db 2 gimaagsitltpalpedgsgafppghfpxkrllycknggfflrhpdgvrvgvrekdp 61

OY 114 HIKILOAEEERGVSIVKVCANRYLAMKEDGRLLASKCVTDECFERLESNNNTYRSR 173

Db 62 hikiqlgaergvsvikvcanylamkedgrllaskcvtdecffferlesnnyntyr 121

OY 174 KYTSWYVALKRTGQYKLGSKTGPQKAILFLPMASAKS 210

Db 122 kytswyvalkrtgqykagstgpgkailflpmsaks 158

